TROIKA SYSTEMS LIMITED

©LithoCAM Manual

Installation and Operation Manual

for LithoCAM - Rev 2.5.4

www.troika-systems.com

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for ©Troika Dotmeter Software

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1. Introduction

Thank you for choosing a Troika LithoCAM. The LithoCAM is used for plate, film and printed copy reading. The LithoCAM encompasses diagnostic tools, file saving and the ability to export the readings directly into the users RIP. To avoid issues during installation, follow the instructions precisely.

The LithoCAM camera is a precision optical instrument, treat it with respect and it will give the user years of useful service. Troika Systems Limited produces the LithoCAM product based on the Logitech Pro 3000 series of web-cams; However, warranty claims should be directed to your dealer and/or Troika Systems Limited and not Logitech.

Operation Systems information.

LithoCAM operates on Windows 2000 and Windows XP operating systems

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- Some laptop PC's and 1st generation desktop PC's with integral USB ports do not meet USB port power specifications. This causes issues with the LithoCAM, the use of a powered USB hub resolves this issue.

Whats in the box.

The package contains:

A LithoCAM dotmeter.
A CD containing the dotmeter application, DirectX software and this manual in PDF format.
A white calibration plate.

Your dealer should be notified of any shortages or damages within 7 days of receipt.

Patch Information.

Software patches are used with the LithoCAM. They allow users to update the application so that it functions correctly with their plate type. Patches work from 2.5.x onwards and not previous versions.

As new plates are launched onto the market patches will be implemented to ensure compatibility with those plates, any instructions as to there use will be shown in the patch notes on web site or installation CD.

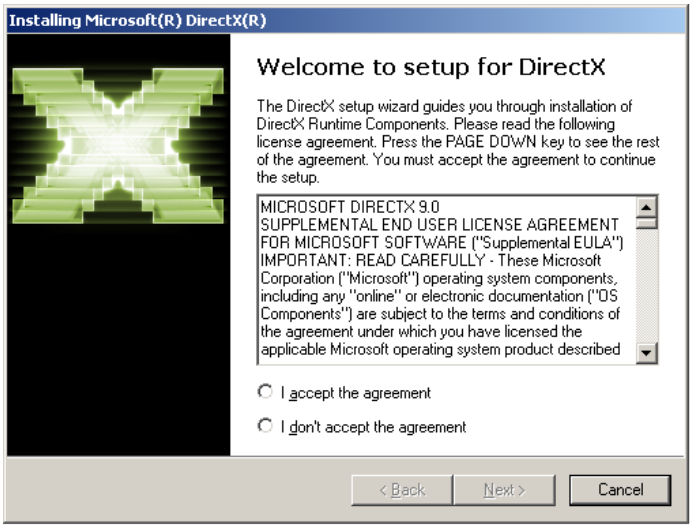
2. Windows XP Installation

DO NOT PLUG IN THE DOTMETER UNTIL REQUESTED TOWARDS THE END OF THE INSTALLATION

On inserting the LithoCAM CD, the LithoCAM installation menu will appear, as that shown below.

The user should first print this manual for reference, then 'Install DirectX'.

Windows XP should already have DirectX installed as part of the Operating System. To ensure it is installed continue with the DirectX installation, (you will be presented with a dialog box similar to that below) if it does not request a reboot DirectX was already on your system.

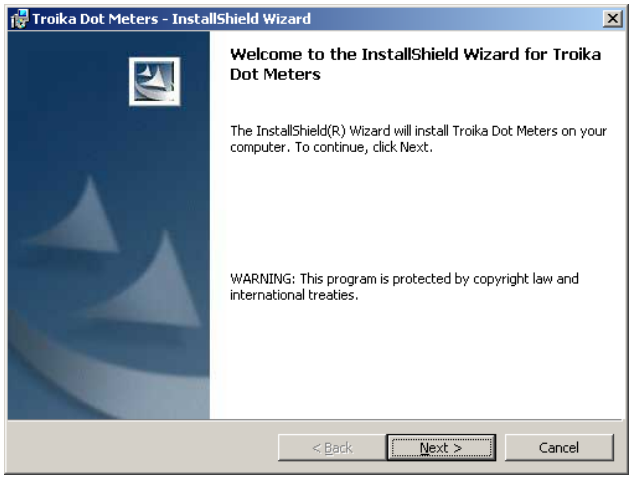


To complete its installation, DirectX will need to reboot your PC, so make sure all other applications are closed and all work is saved.

Once your PC has restarted, the installation menu will reappear on the screen.

Now 'Install the LithoCAM application and camera drivers'.

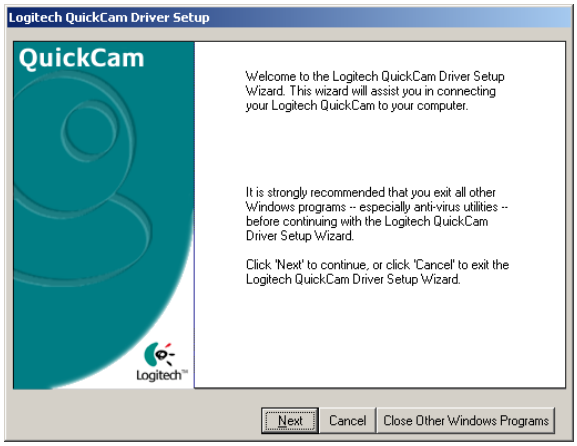
Follow the onscreen instructions to install the software. The LithoCAM application is installed first, followed by the Camera drivers – see the figure below.

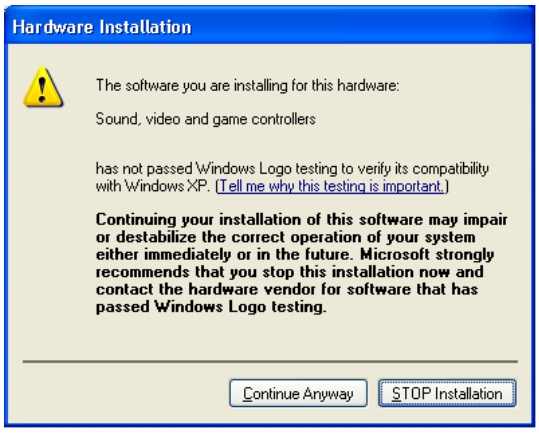


- Read the terms and continue if accepted.
- Follow the onscreen instructions to install the software – see the figure to the left. The LithoCAM application is installed first and the camera drivers second.

You will be asked to restart your PC at this point.

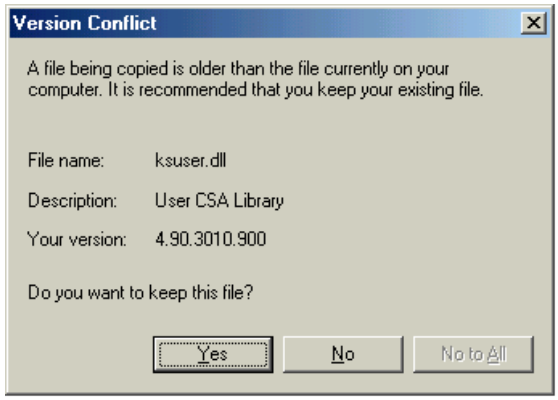
Once the LithoCAM software is installed, the camera drivers need to be installed, as shown below.





If at any time during the installation a window similar to that below is seen, it is a Microsoft Digital Signature. This has no impact on the installation, the PC or other applications. Select **'Continue Anyway'** i.e. do NOT press ENTER, as this will stop the installation by default.

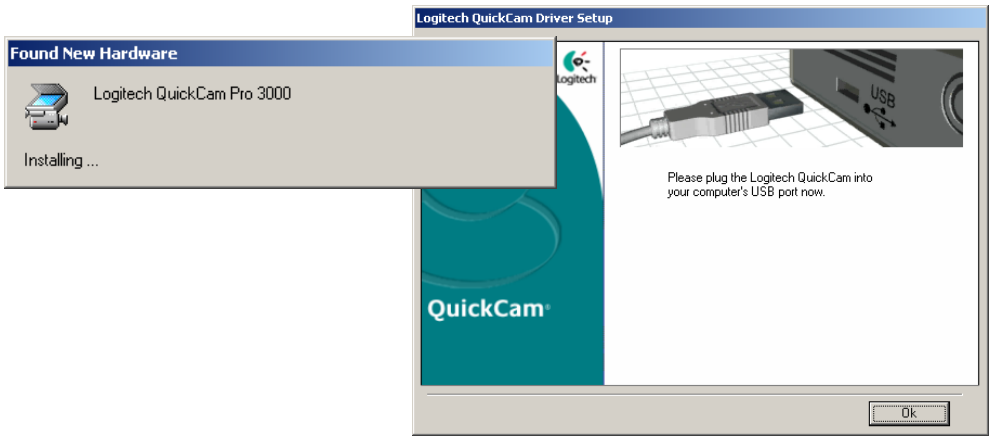
If a '**Version Conflict'** window, such as that shown below occurs during the installation, keep the existing file by clicking '**Yes'.**



Ensuring all other applications are closed, and anti-virus utilities are switched off, press '**Next'.**

When requested, plug in the Dotmeter in order to complete the installation procedure – as shown in the figure given.

The Operating System will take a while to find the new hardware. Once it has done so, click **'OK'**. Windows XP installation is complete at this point.



When finished, click on 'Exit Installer' to close the installer.

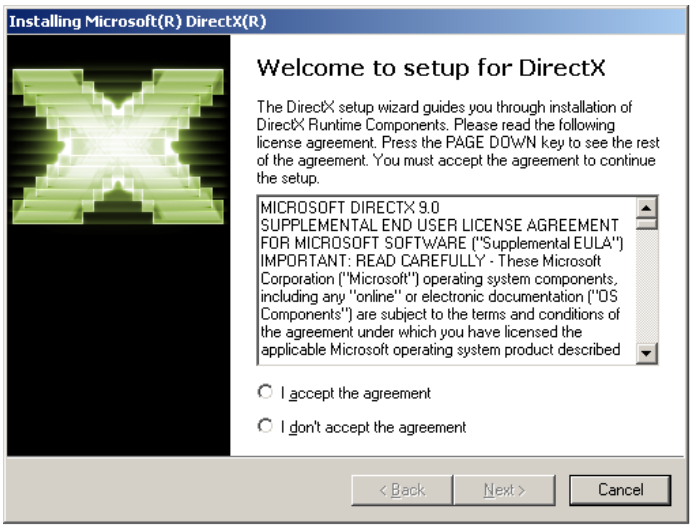
3. Windows 2000 Installation

DO NOT PLUG IN THE DOTMETER UNTIL REQUESTED TOWARDS THE END OF THE INSTALLATION

On inserting the LithoCAM CD, the LithoCAM installation menu will appear, as that shown below.

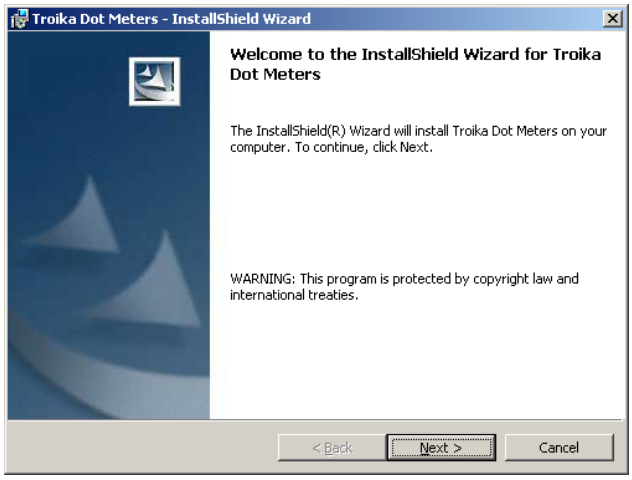
The user should first print this manual for reference, then 'Install DirectX'.

DirectX must be installed prior to installing the LithoCAM application. When installing DirectX, you will be presented with a dialog box similar to that shown. If DirectX has not been installed previously it will be necessary to reboot your PC, so make sure all other applications are closed and all work is saved. Once your PC has restarted, the installation menu will reappear on the screen.



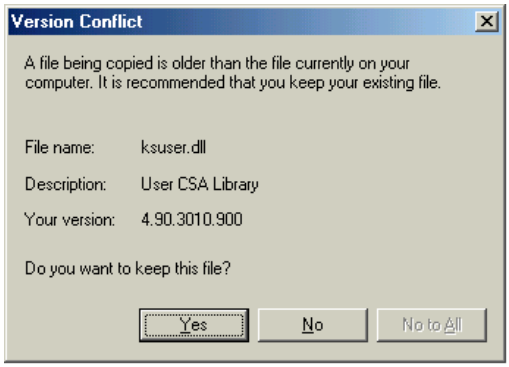
Now 'Install the LithoCAM application and camera drivers'.

Follow the onscreen instructions to install the software. The LithoCAM application is installed first, followed by the Camera drivers – see the figure below.



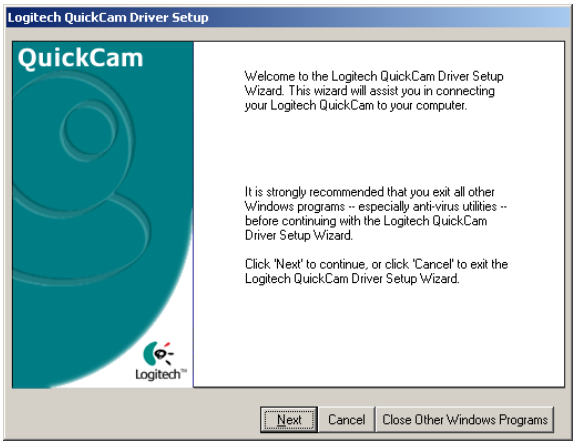
- Read the terms and continue if accepted.
- Follow the onscreen instructions to install the software – see the figure to the left. The LithoCAM application is installed first and the camera drivers second.

If a '**Version Conflict'** window, such as that shown below occurs during the installation keep the existing file by clicking '**Yes'.**

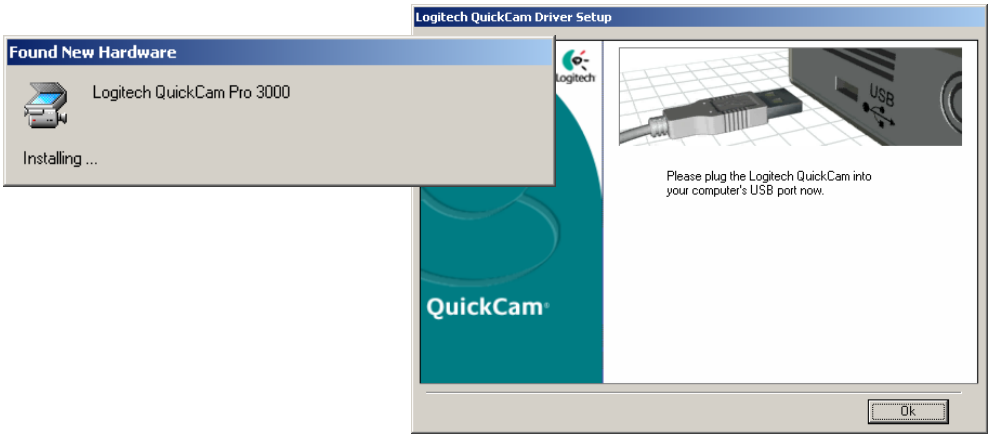


After the requested reboot the Logitech install windows are activated, as can be seen in the figure below.

Ensuring all other applications are closed, and anti-virus utilities are switched off, press '**Next'.**



When requested, plug in the LithoCAM in order to complete the installation procedure – as shown in the figure below.

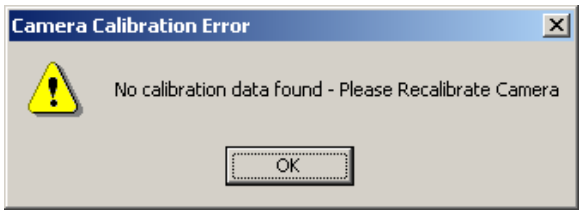


The Operating System will take a while to find the new hardware. Once it has done so, click '**OK**'. Reboot the PC again. Once the PC has rebooted and found the Logitech QuickCam Pro 3000, LithoCAM is ready for use.

When finished, click on 'Exit Installer' to close the installer.

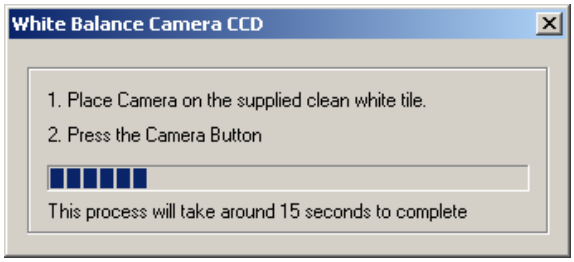
4. Running the dotmeter for the first time.

The first time the application is run, the 'Camera Calibration' box will request that the camera is calibrated.



Calibration is used to linearise the light source for the dotmeter camera, not to match the dotmeter to the media, therefore this procedure is only required on installation.

Clicking on 'OK' will bring up the '**White Balance Camera CCD**' window, as shown.
To calibrate place the LithoCAM on the supplied WHITE calibration tile, and PRESS THE BUTTON on the LithoCAM. The unit will calibrate in approximately 15 seconds.



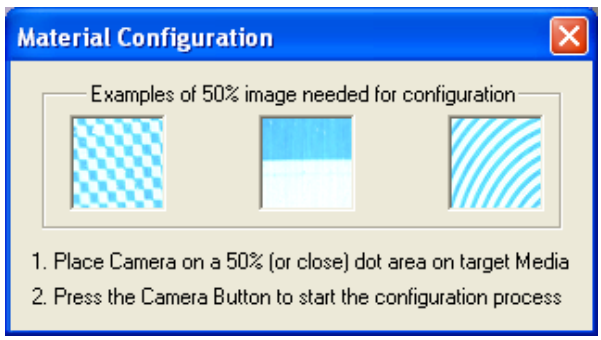
If the dotmeter (camera) is not calibrated, this will be indicated clearly in the title bar.
In the unlikely event you need to **White Balance Camera CCD** again, this can be done through **Options / White Balance Camera CCD**.

Once the camera has been calibrated it is necessary to "Configure" to the media you wish to use.

Configuring Media

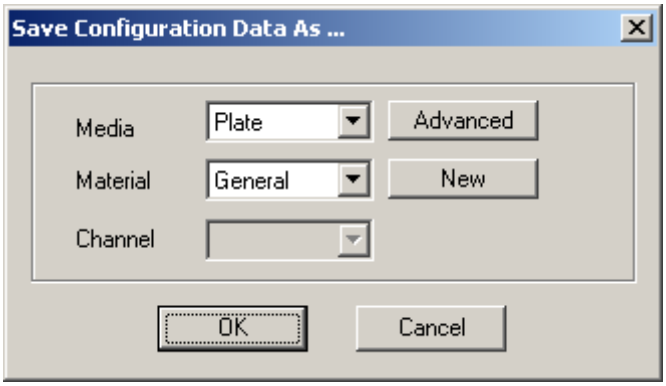
To ensure the accuracy of readings it is essential to configure each type of substrate to be analysed.
This procedure only needs to be done once when the media is first used.

The '*Material Configuration'* instructions will then open.
Set-up on an area that is approximately 50% as shown.
The area can be a 50% halftone or pattern or a 50/50 exposed to non-exposed area.

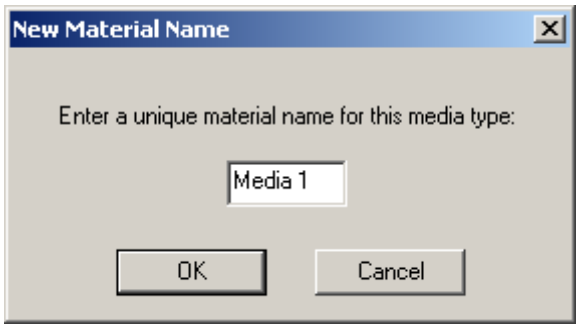


IMPORTANT NOTE: configuring the LITHOCAM finds the minimum and maximum contrast of the material, **it is therefore not necessary to find an exact 50% area, between 45%-55% is fine.**

When configuring a material, the contrast of the image viewed will change several times. Once complete a '*Save Configuration Data As…'* window will appear.



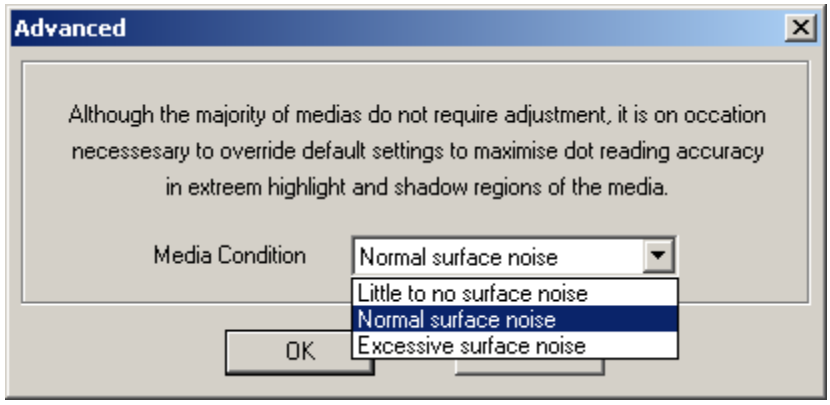
Selecting '*New'* gives the user the opportunity to name that media for future selection when analysing a Plate, Film or Printed Copy. This has been done for the example of plates shown. The example below shows that different types of plates have been configured and saved as 'Kodak Ele', 'Agfa P970', 'Toray TAP' etc.



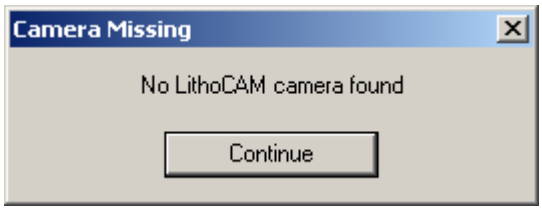
Note: For Printed Copy it is necessary to select and *configure* each colour.

Media: Surface Noise

The 'Advanced' button is for materials that either have a high level of noise in the background, or materials that are particularly noise free. Polyester plates and newspaper printed copy would be examples of a material with high surface noise. The default is *Normal surface noise.*



If the LithoCAM camera is not connected, or is removed during use, the ‘Camera Missing’ window will be seen, as shown below. Close the application, reconnect the camera unit and re-launch the application.



Note: The video capture window should be closed before the camera is removed.

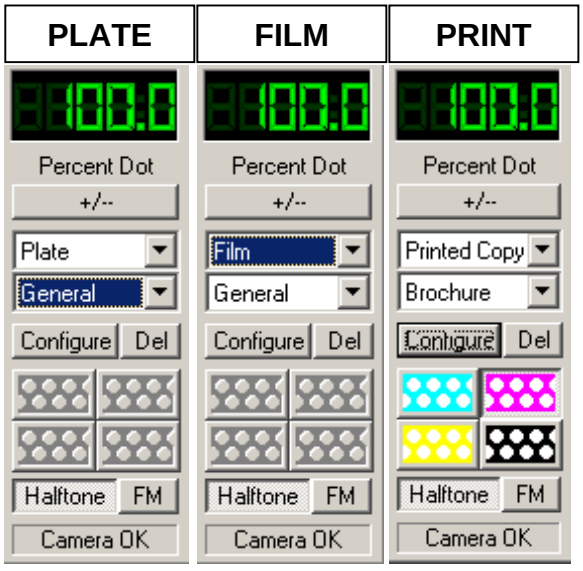
5. LithoCAM User Controls.

Media Selection

Select the type of media to be analysed: Plate, Film or Printed Copy, and for screen type choose between Halftone and FM (Stochastic).

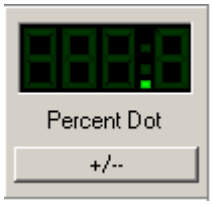
The LithoCAM Video Window.

The selection will modify the application settings for an optimum reading on the media and type to be used. These are illustrated in the figure below.

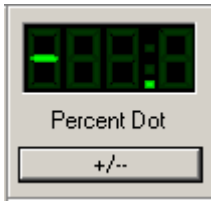


Positive or Negative Reading.

Pressing this control will toggle between a Positive reading and a Negative reading.
The negative reading mode is indicated by a leading "**–**" sign in the Percent Dot display as shown.



Positive Reading selected



Negative Reading selected

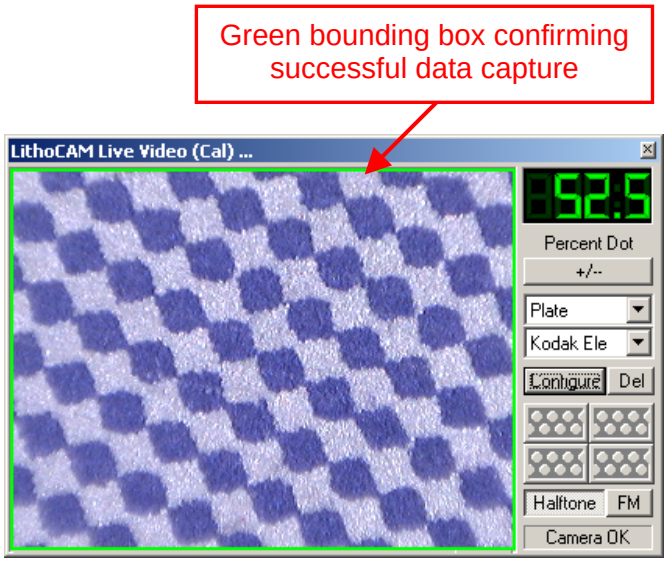
Making a reading

LithoCAM is very simple to operate. Firstly place the target hole over the point to be measured. Then lower the top down onto the target area , and press the black button on the top of the LithoCAM to capture the image:

- If the 'LithoCAM' splash screen is visible a first press of the button will be needed.

- During capture 'PROCESSING' will be displayed and an AMBER frame will be seen. Once captured, a GREEN frame will appear around the image with the correct reading.

The following points should be noted:
LithoCAM works as a surface microscope and has a narrow depth of field. Therefore, make sure that your plate is on a flat, firm surface to keep the image in focus.



Printed Copy is inevitably a soft material, and therefore the focal point is slightly different to the solid material found in plates. For printed Copy it is necessary to bring the analysing head back from the copy very slightly to achieve focus in the centre of the image.

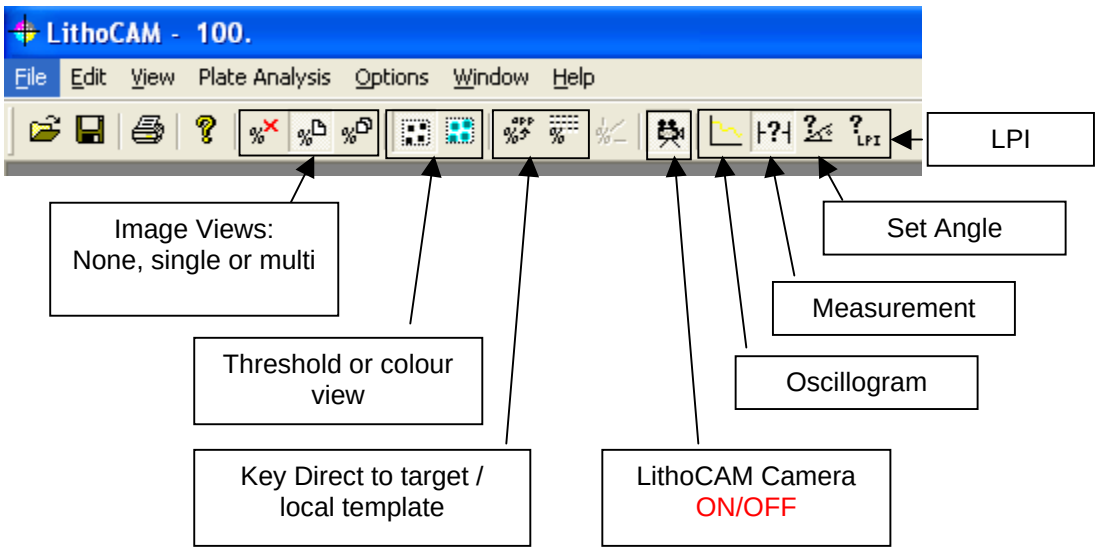
When measuring **FILM**, ensure the emulsion is uppermost, and the film is placed on a light box, however too much light will prevent the LithoCAM from configuring.

6. LithoCAM Toolbar

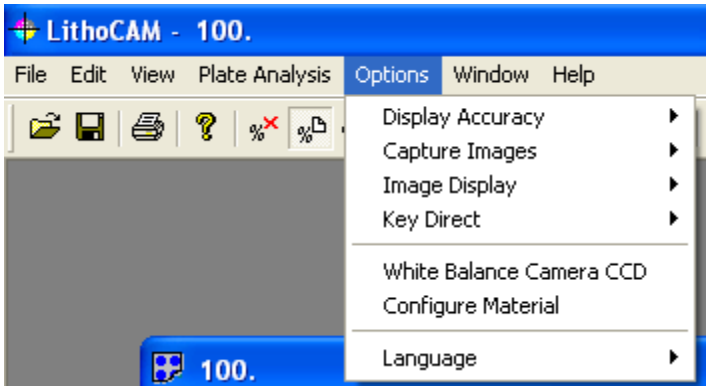
LithoCAM has several functions that make it a very useful tool for analysis, these include:

1. **Plate Analysis**
2. **Dot Gain Calculator (mechanical)**
3. **Geometric measurements**
4. **Direct RIP interface**
5. **Saving images in various file formats**
6. **Screen Angle Calculator**
7. **Screen Ruling Calculator**

Icons and Toolbar Layout.



The **Options** window gives access to:



- **Display accuracy**: in 1% or 0.5% or 0.1% increments. 0.5% being the default.
- **Capture images**: either none, single or multi images may be captured.
- **Image display** can be selected to threshold or colour view. **Key direct** allows selection to an application such as a RIP, or to a local template.

Language selection is either English or Japanese at the time of writing.

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7. LithoCAM Menu

File

File has many of the standard functions associated with windows applications.

- '**Save As'** allows a single image or multiple images (if a series of images has been captured) to be archived as an xxx.lcp file.
- **'Export Image'** allows the image to be saved as a JPG or BMP file.

'Close all' will close all the high-resolution views, which is quicker than closing a whole series of views one at a time.

View

View allows the user to toggle several views on or off, including the toolbar, the status bar as well as the video screen itself. The LithoCAM video screen is where all readings are taken, and is forced to the front of the screen. This is why it is useful to be able to close the window when using other applications. Clicking on the video screen when using another application will automatically bring the LithoCAM application back up on the screen.

Plate Analysis

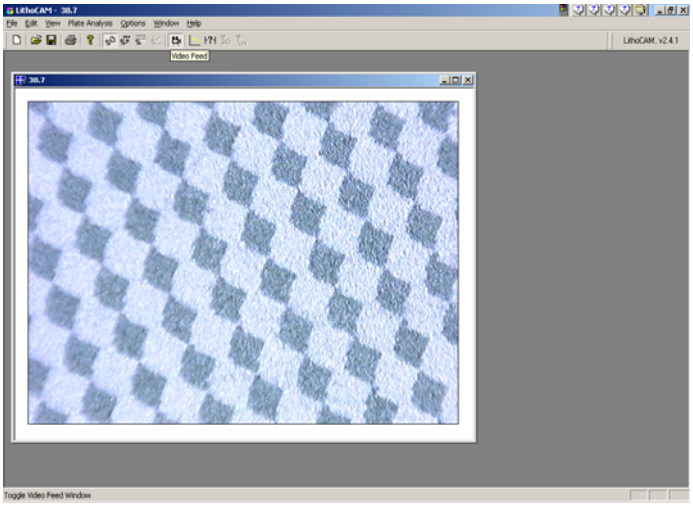
Plate Analysis is available in the menu toolbar once an image has been captured. With a captured image more options become available; such as key direct, measurements and the oscillogram.

Captured Image analysis.

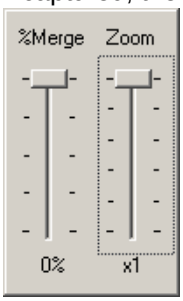
When the 'Image Capture' button is depressed, a full resolution image of the capture data is displayed. The image view can be selected to allow single or multi views, or have it switched off; also the image can be viewed in full colour or as analysed to produce the percentage reading in black and white. Both can be reversed using the slider bar described below.

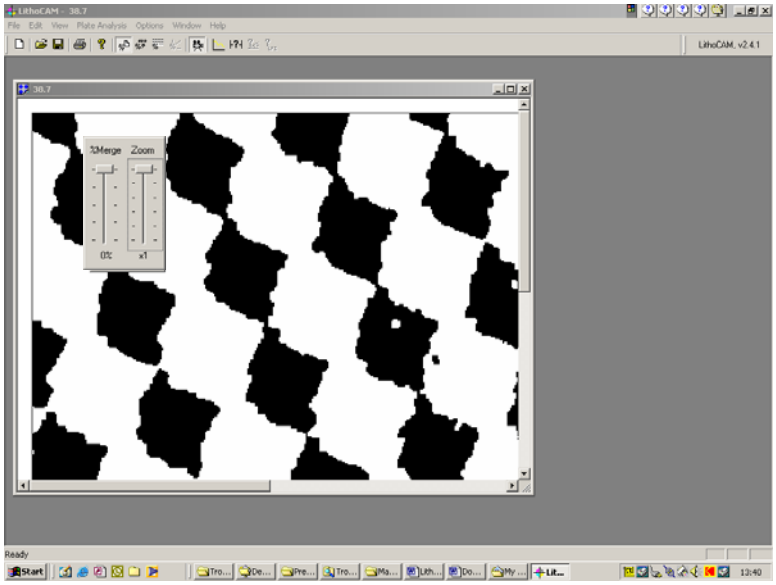
Merge and Zoom

Analysing and zooming the captured data:



Once the full image has been captured, the mouse can be “right clicked” and the ‘%Merge’ and ‘Zoom’ sliders are made available.

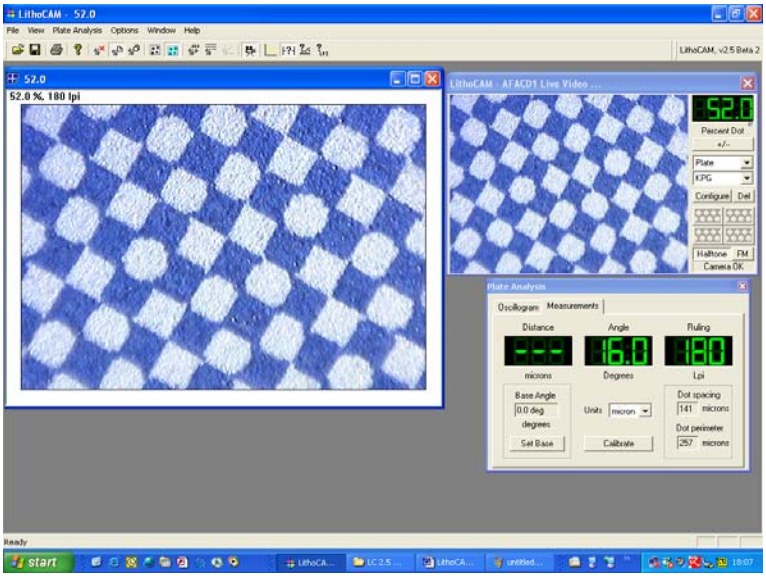




The merge changes the view from the captured image and shows the dots that have been analysed.
The user is able to zoom in on the image by up to 6 times magnification. The two sliders work independently of each other.

Options

Enables two selections:

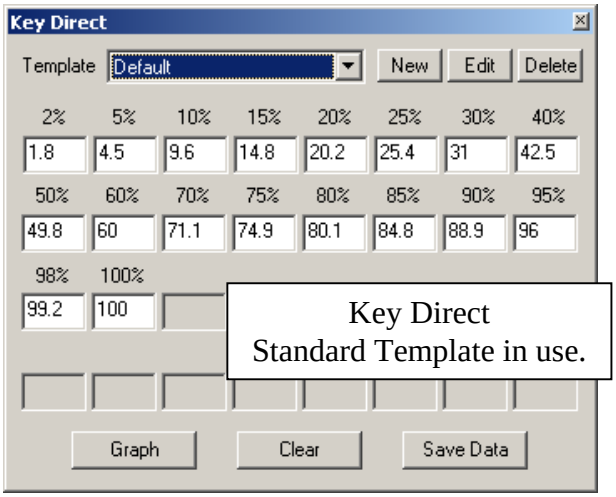


Capture images

This allows the high-resolution image to be viewed and captured for analysis.

Key direct

The user can select whether to use a local template, as shown in the Key Direct default template below, or send the data directly to a target application.



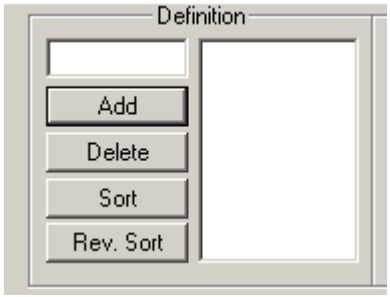
Key Direct
Standard Template in use.

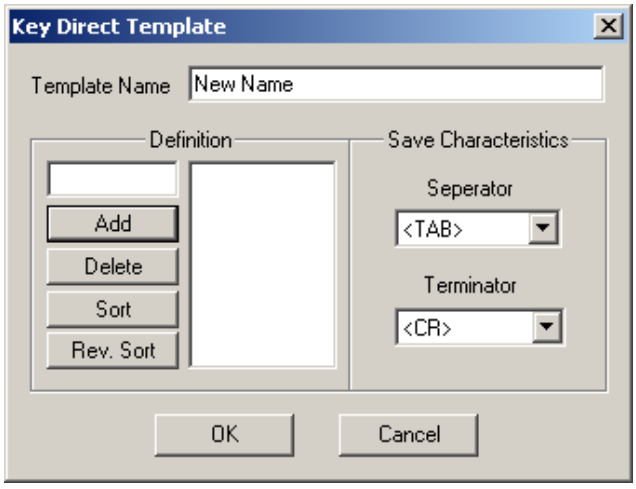
Key Direct User specific Template

If an alternative template is needed click on NEW and:

1 Enter a Template Name.

2 Design a template to meet personal needs within the *Definition*:



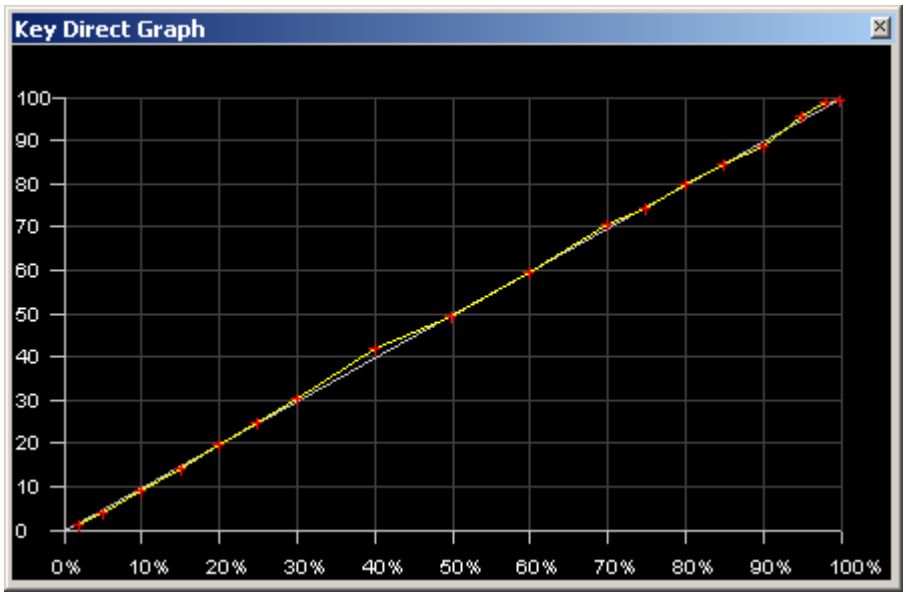


Key in the numbers needed to make a template in the box above '*Add*', then key "enter" on the keyboard to log the number. Delete a number by highlighting it and press '*Delete*'. Once all the numbers have been entered they can be sorted using '*Sort*' button. Numbers can also be sorted in reverse order using 'Rev. Sort'.

Additional functions in Key Direct.

Graph

This shows the template layout as well as the plate information as it is being entered.



Clear

Clear allows the user to clear all the information entered in the template during that operation.

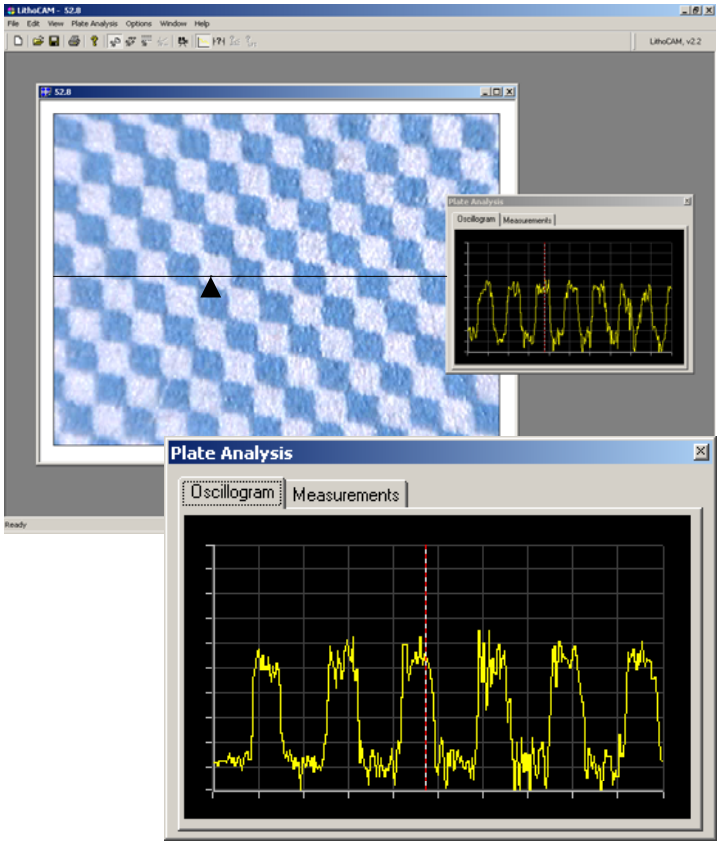
Save Data

Save Data is used to save the information from that set of readings to an application or RIP of the user's choice. It uses the *separators* and *terminators* previously defined. The file is saved as 'Default.txt' in the 'Save As' window. Alternatively the file can be saved using an application such as Excel, where further analysis of the data can be made. The graph given shows the type of analysis that is made possible by this functionality.

Oscillogram

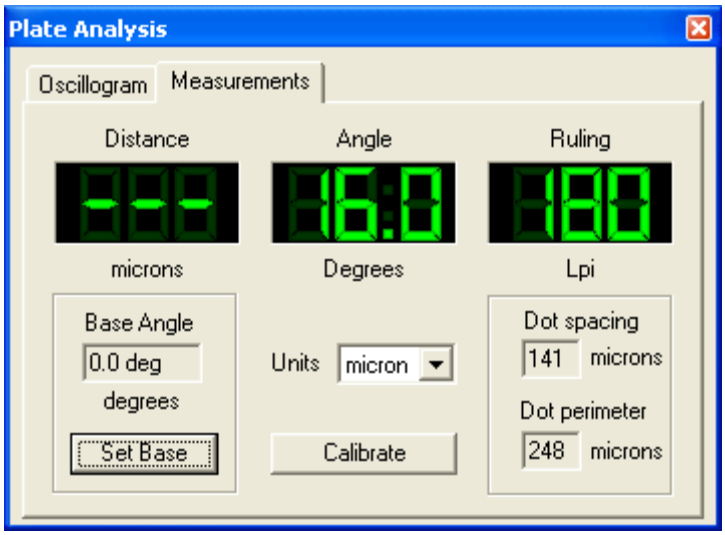
This is used to analyse the noise on the plates and the edges of the dots. It can also be used to analyse the contrast of light to dark areas of the plates.

A horizontal bar will show on the full resolution image, and the mouse pointer will define the exact place being analysed. A dashed vertical line on the Oscillogram indicates its relative position.



Measurements, Screen Rulings and Angles

- **Measurements**



Measurements are used for geometric measurements, screen angle and screen ruling calculations.

The **screen ruling** is automatically displayed. For the best results use 20 – 40% or 60 – 90% dot areas.

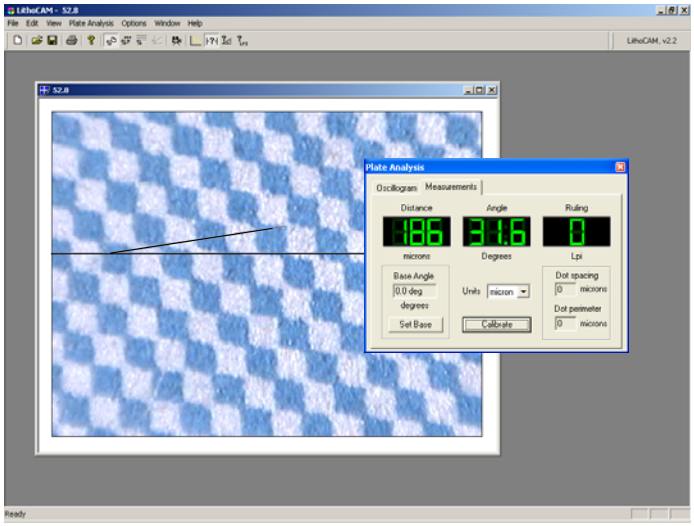
Screen Angle is automatically displayed, the reference being the rear end of the camera. Alternatively if the 'Set Base' is used as the reference angle the displayed angle will refer to the angle used.

Dot Spacing: displays the average spacing between dots in microns

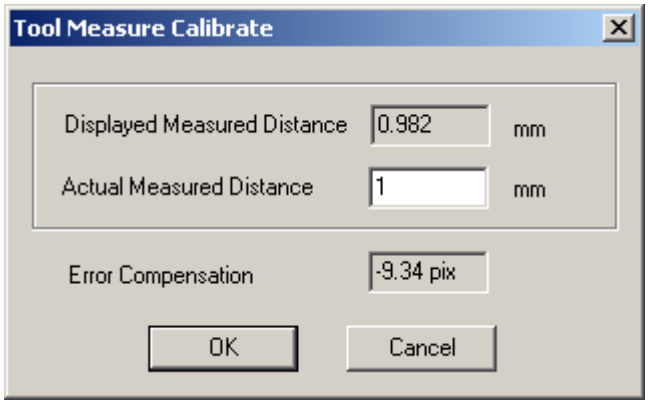
Dot perimeter: displays the dot circumference in microns. (Useful for checking dot quality)

All other measurements are in millimetres, microns, inches and pixels.

Measurement Calibration



- '*Measurements'* allows the user to measure distances, at any angle on the full resolution image.
- Prior to taking a measurement it is advisable to calibrate the measurement tool.
- Select the units needed.
- Place the mouse on the first point to be measured and drag the mouse to the final position, and release. The line is seen on the image and the distance is shown in the '*Measurements'* window.



Using an appropriate and accurate scale, take a measurement reading from the high-resolution image, which is displayed using the measurement tool. (The example below is at a 1mm scale) The un-calibrated measured distance is 0.982 mm.
In the '*Tool Measure Calibrate'* window enter the Actual Distance, and select 'OK'.
In this example a correction factor of –9.34 pixels was automatically made.

Note: The baseline colour will vary over the image – this is because the baseline takes whichever colour provides the best contrast against the background image.

Saving Images

In '*File / Save as'* the images can be saved as 'xxx.lcp' files, which is a format specific to LithoCAM. These files can be emailed to third parties and opened again in a LithoCAM application for further analysis with the LithoCAM tools.

'*File / Export Image'* allows the high-resolution data to be saved in other formats such as BMP & JPG.

8. About LithoCAM

The ‘About LithoCAM’ information is accessible through the Help icon in the main menu bar, or by pressing the Troika company logo below the Colour Selection.