

**MICROSEAM 5.0  
Inspection Software  
(Budget Version)  
User Guide  
Issue D**

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PRODUCED FOR  
**ARUNDLE OPTICAL  
INSTRUMENTS**

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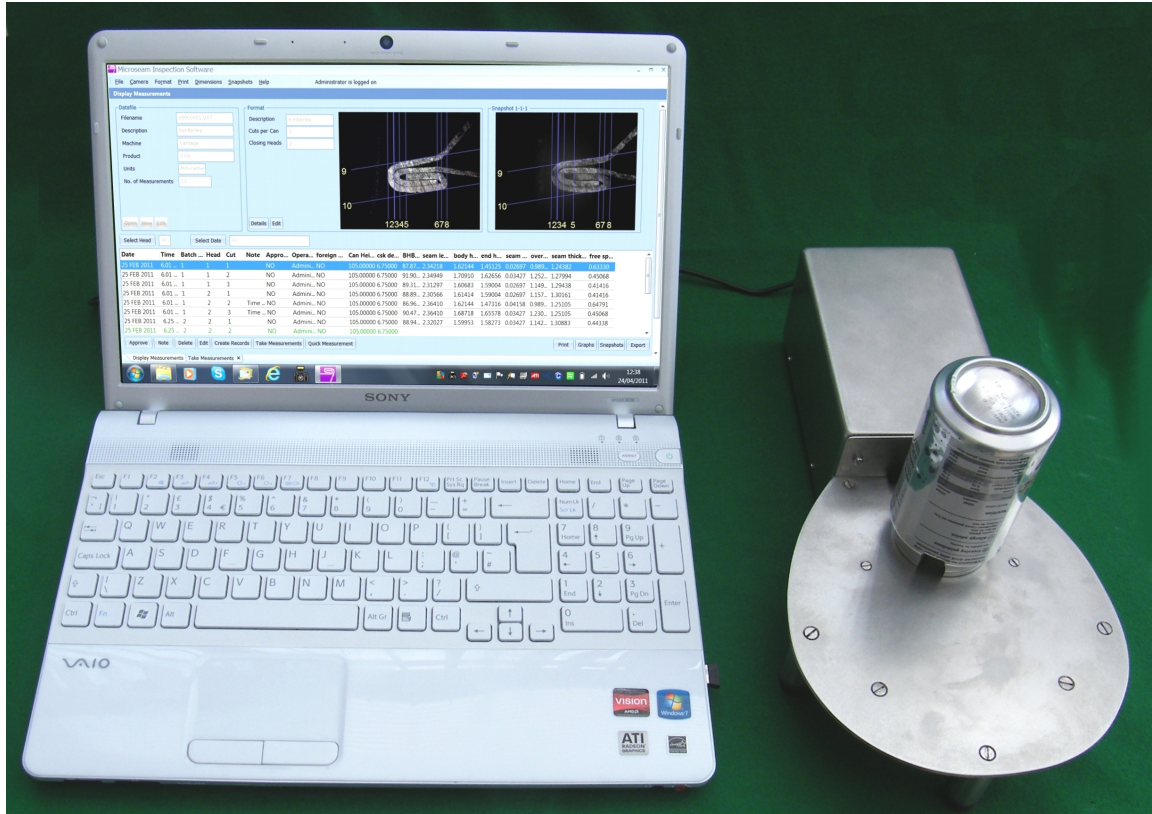
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# 1 OVERVIEW

Microseam is a Windows-based software package, used in conjunction with a USB camera, for inspecting the dimensional accuracy of seam joints in metal cans.



The Microseam software enables seam measurements to be made using an image taken with a Digital Microscope video camera. The camera receives power from the PC via the USB interface. A mouse-driven interface is used to take measurements on the image.

Seam images can be saved to a file (Windows Bitmap (BMP)).

The Microseam software is available in three versions:

- The 'Professional' fully functional version.
- The 'Standard' version, which is a low cost option, does not allow historical snapshots to be viewed, or printed in reports or allow auto seam detection.
- The 'Budget' version.

This document describes the installation and use of the 'Budget' version of the Microseam software on a PC running the Microsoft Windows 7 operating system.

## 2 SYSTEM REQUIREMENTS

Microseam requires:

- A PC running a 32-bit or 64-bit Windows operating system, i.e. Windows XP, Windows Vista, Windows 7, or Windows 8.
- A screen with at least 1024x768 resolution.
- A graphics card capable of a minimum of 16 bit (High Color) colour depth.
- A high-speed USB port (USB 2.0) for connecting the video camera.

## 3 MICROSEAM SOFTWARE INSTALLATION

A competent person, with a working knowledge of the Microsoft Windows operating system, should carry out software installation. This person should have Administrator privileges on the PC.

The software will run on PC's with 32 or 64 bit operating systems.

The installation wizard will install files, by default, in **C:\Program Files \Arundle Optics\Microseam\_v5** for 32 bit operating systems and **C:\Program Files (x86)\Arundle Optics\Microseam\_v5** for 64 bit operating systems, though other locations can be chosen.

A folder **C:\mis\_v5** is also created with a series of sub-folders to contain user files. These folders are:

- customers
- formats
- images
- temp\_snapshots.

### 3.1 Installing Microseam

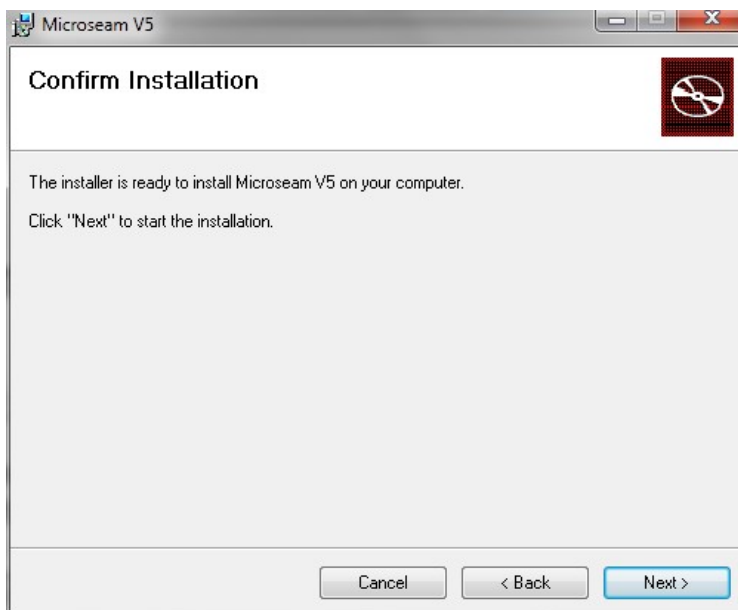
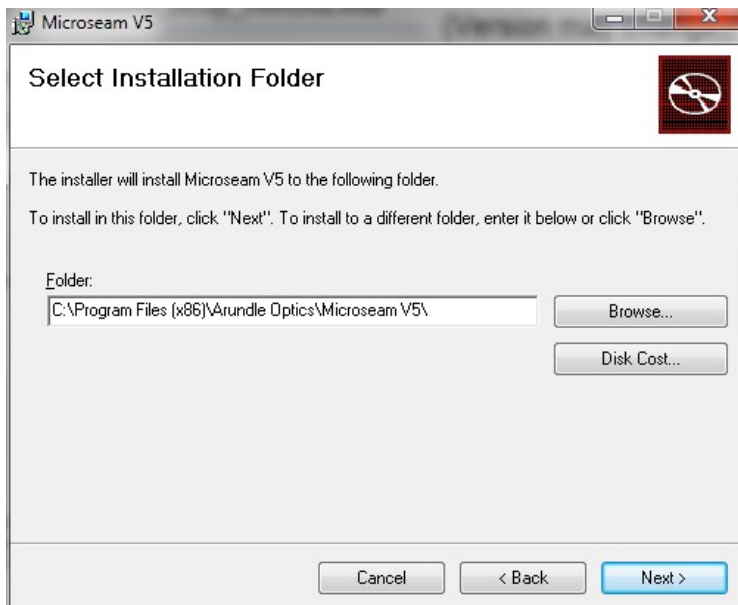
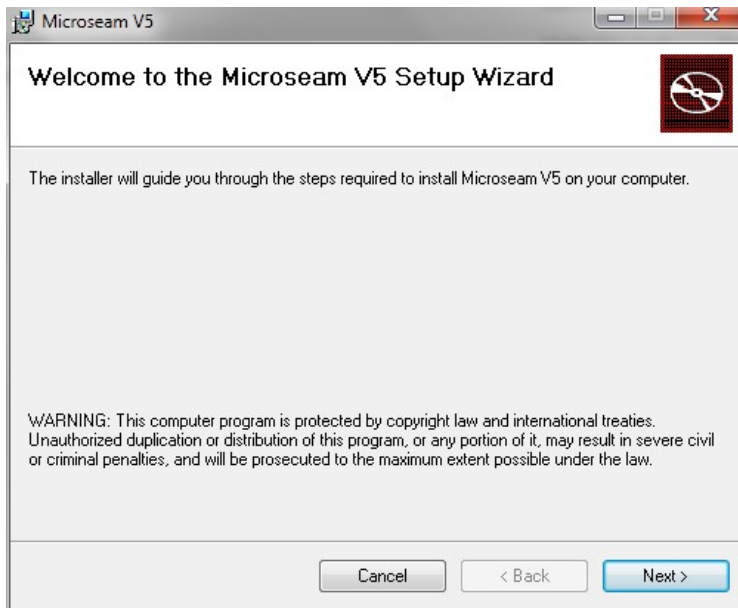
The Microseam program, which is supplied on a single CD-ROM, contains all three versions of Microseam (Budget, Standard and Professional); this allows the user to upgrade in the future by entering a supplied license code (see later).

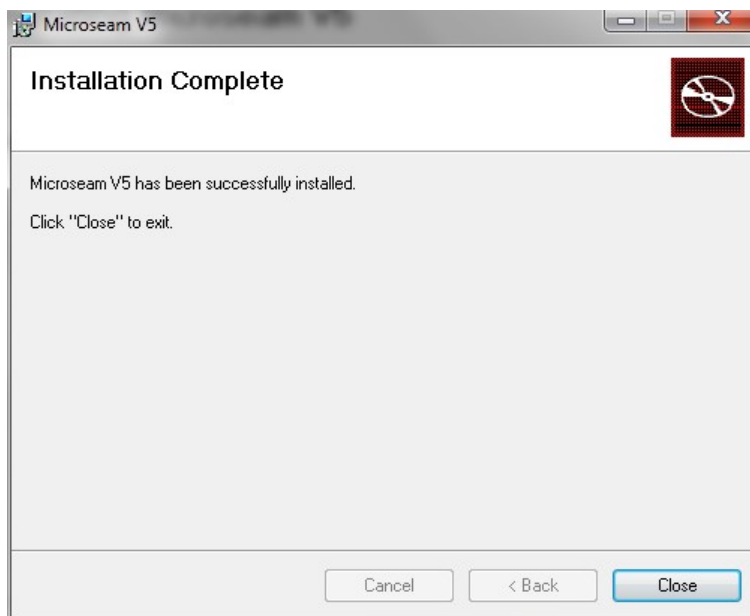
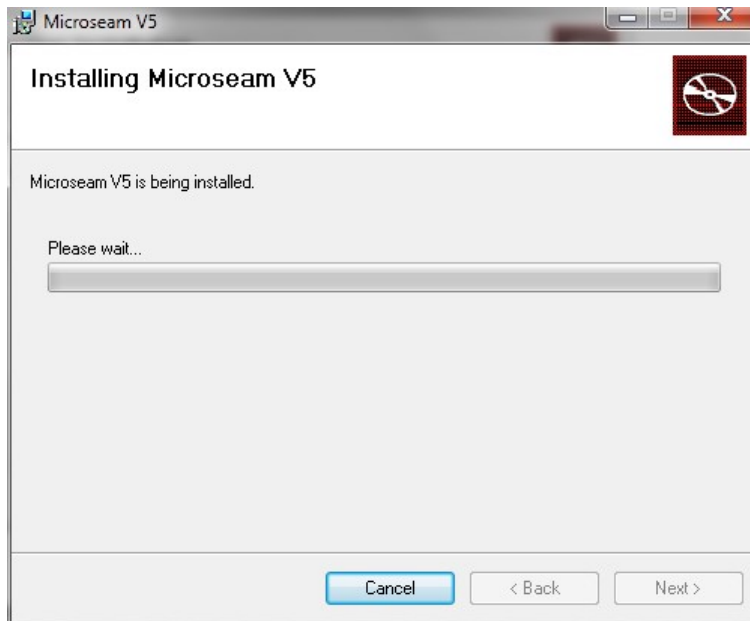
The CD-ROM will contain the license code for the version purchased.

- Insert the CD-ROM containing the Microseam software into the CD drive.
- To start the Setup Wizard, navigate to the CD drive and double-click on:

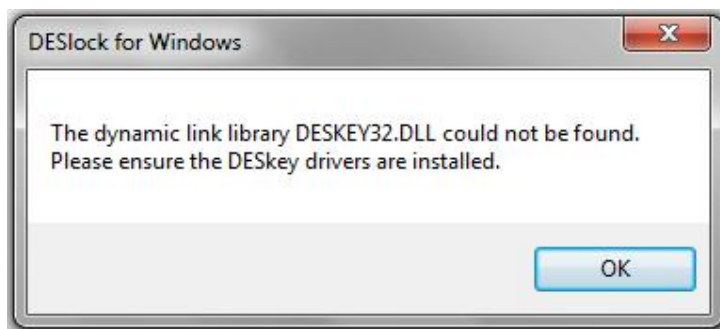
 **microseam\_setup\_5v0v7v0.msi** (Version may change).

- The setup wizard will guide the user through the installation process as shown below:






After installation, do not run Microseam or connect the Camera, before installing the drivers for the DESkey dongle and USB camera (see sections below), otherwise the following message will be seen:

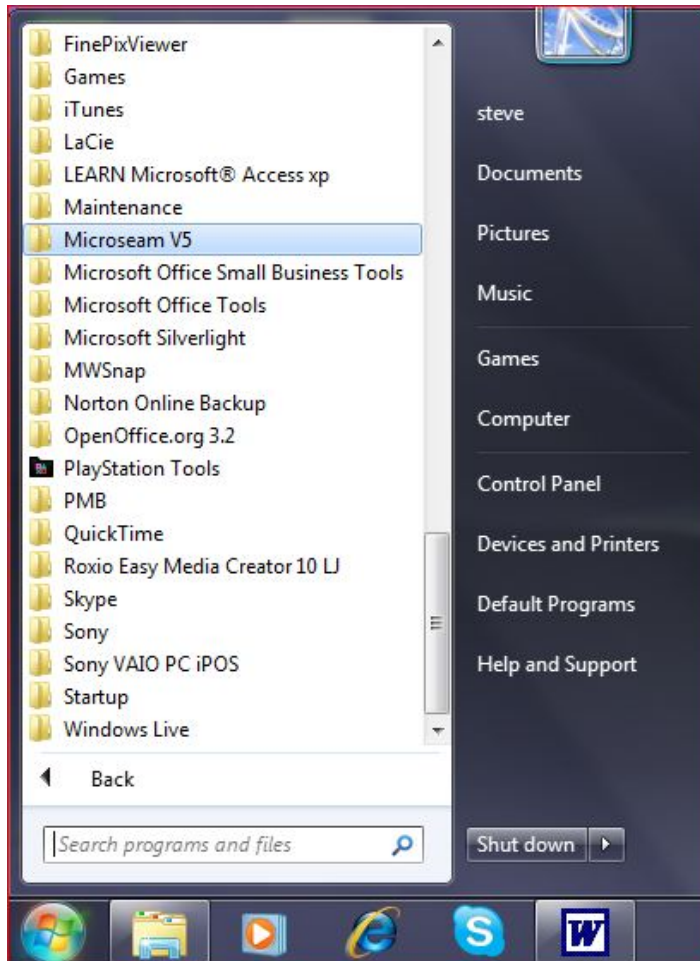




### 3.2 Installing the DESkey Dongle Drivers

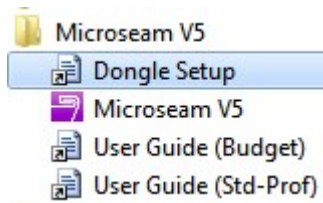
For software copyright protection, a protection device (DESkey DK2 Dongle) is installed inside the camera. Thus the Microseam program will not run without the camera attached. For the 'dongle' to function, drivers **must** be installed as explained below:

- Click on the Windows **Start** icon  at the bottom left of the screen.
- Click **All Programs**, which will display a list of installed programs similar to below:



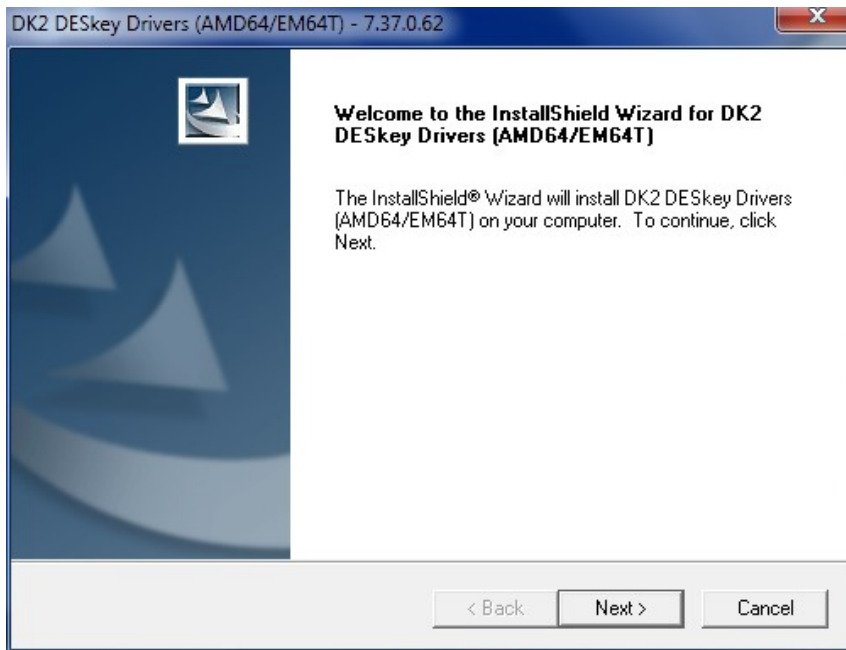
- Click on **Microseam V5**.

A list of Microseam programs appears:

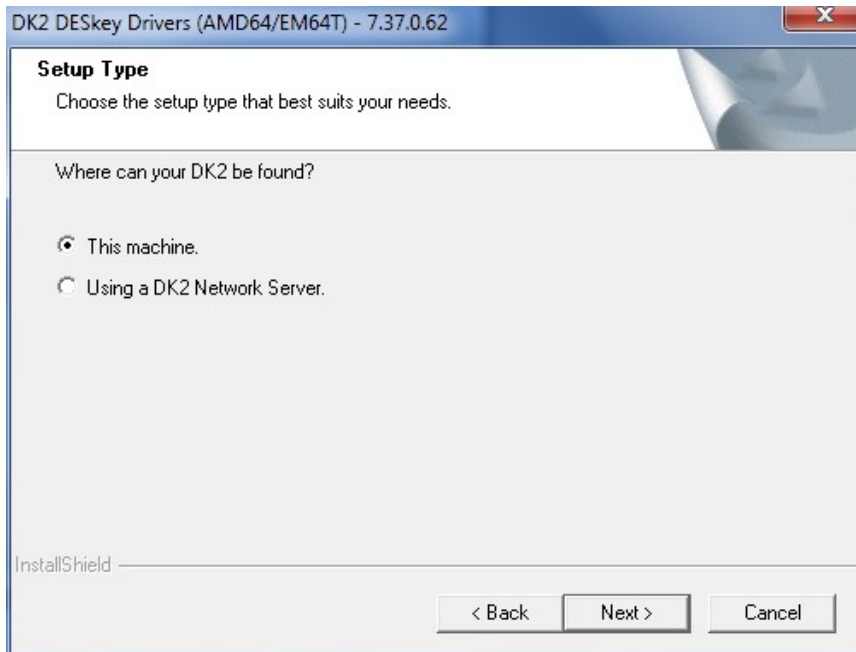


- Click on **Dongle Setup**.

The installation wizard will provide a guide through the installation process for the DESkey DK2 dongle drivers.



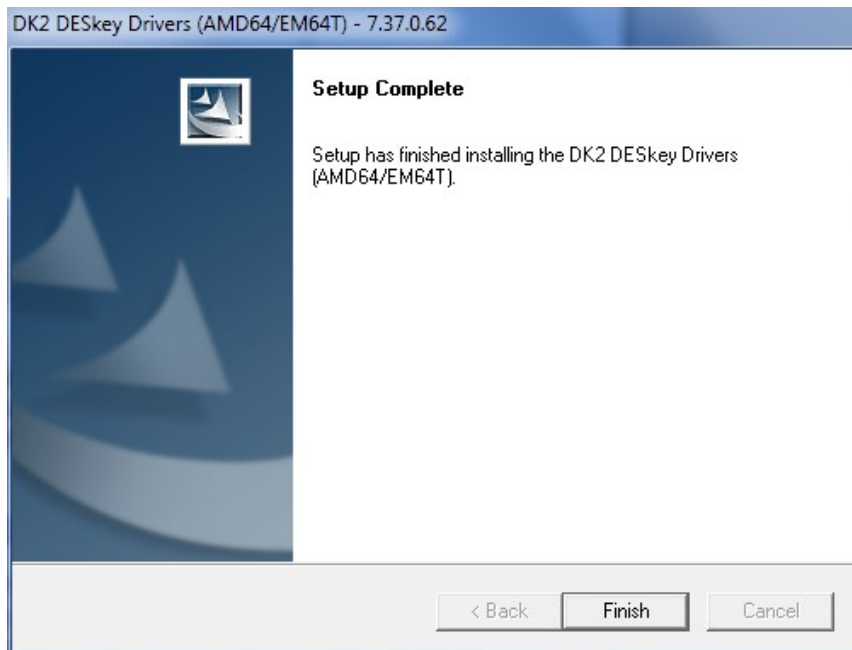
- Click on the **Next** button.



- Select **This machine** and click the **Next** button.



- Click the **Install** button.



- Click the **Finish** button.

If the operating system is ever upgraded after installing the dongle drivers, for example from Window XP to Vista or Windows 7, uninstall the drivers first and reinstall after the operating system upgrade. Further information can be found at <http://www.deskey.co.uk>.

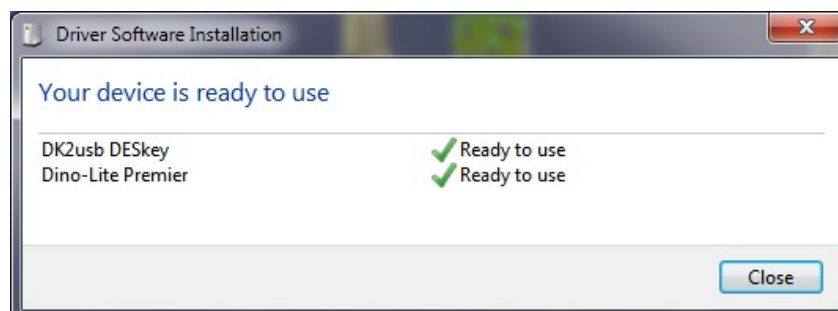
### 3.3 Installing the USB Camera Drivers

For the USB camera to operate, a driver must be installed. The camera uses the standard Microsoft driver and this process is carried out automatically when the camera is connected for the first time (see below).

### 3.4 Completing the Installation

To complete the installation, the USB camera must be connected to the PC. The PC will recognise the device and install the necessary software.

- Plug the USB cable from the camera into a free USB socket on the PC.
- Messages regarding the installation progress of the camera and dongle will appear.



### 3.5 Entering the License Code

To enable the version of Microseam software purchased, a license code must be entered as described below:

- Ensure the camera is connected to the PC.
- Start the Microseam program.

**To start Microseam from the icon on the desktop:**

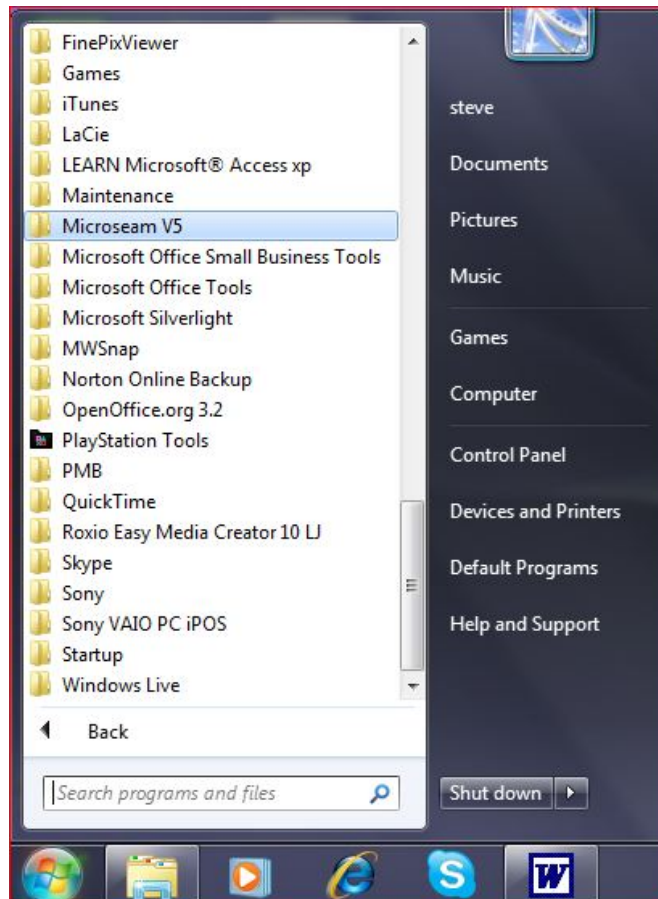


- Double-click the Microseam icon

**To start Microseam from the Windows Start Menu:**

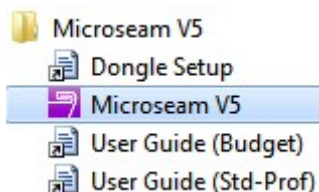


- Click the Windows **Start** icon at the bottom left of the screen.
- Click **All Programs**, which will display a list of installed programs:



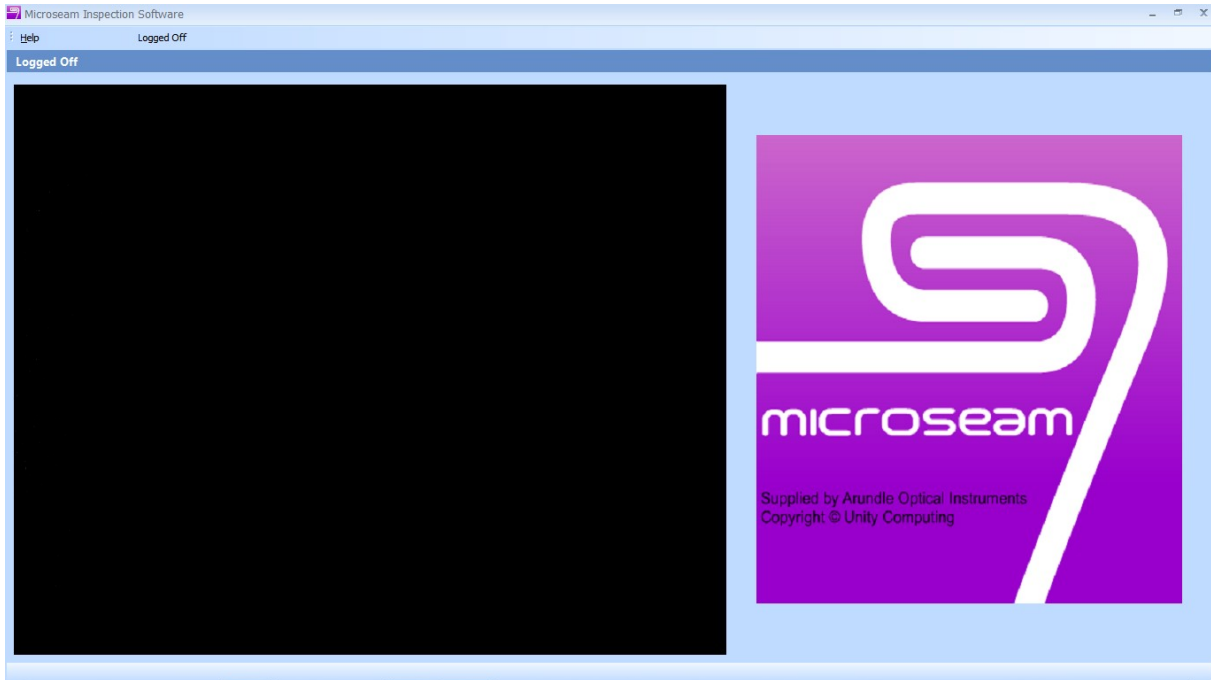
- Click on **Microseam V5**.

A list of Microseam programs will appear:

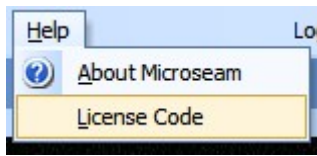


- Click on **Microseam V5**.

The Microseam program starts and the 'Logged Off' screen appears:



- From the main top menu bar select the **Help** option then **License Code**.

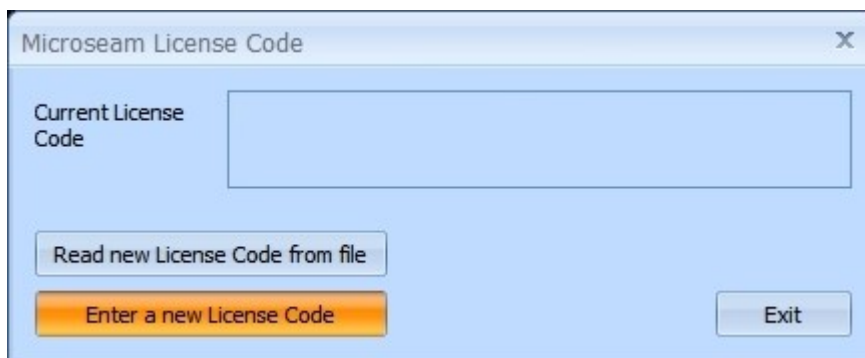


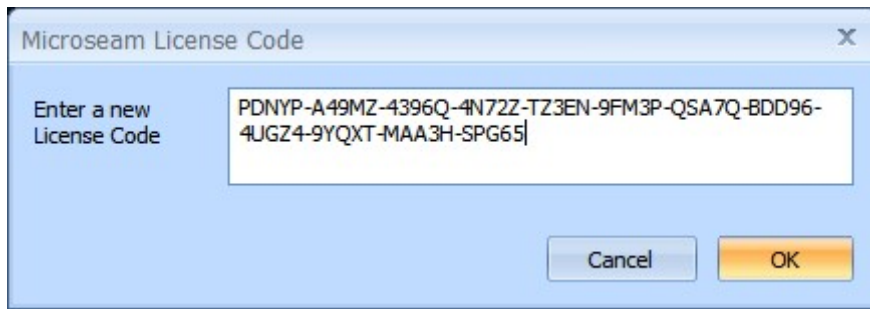
A 'Microseam License Code' box appears.

There are two ways of entering the License Code, by reading the license code from a file on a supplied CD-ROM or by entering the license code manually.

**Entering the License Code manually:**

- Click the **Enter a new License Code** button.

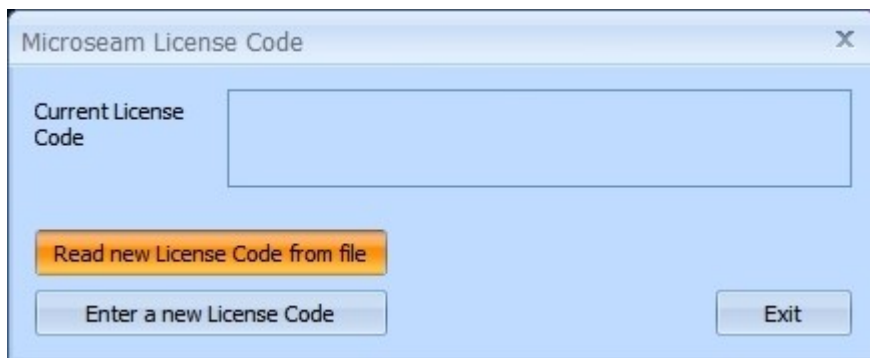




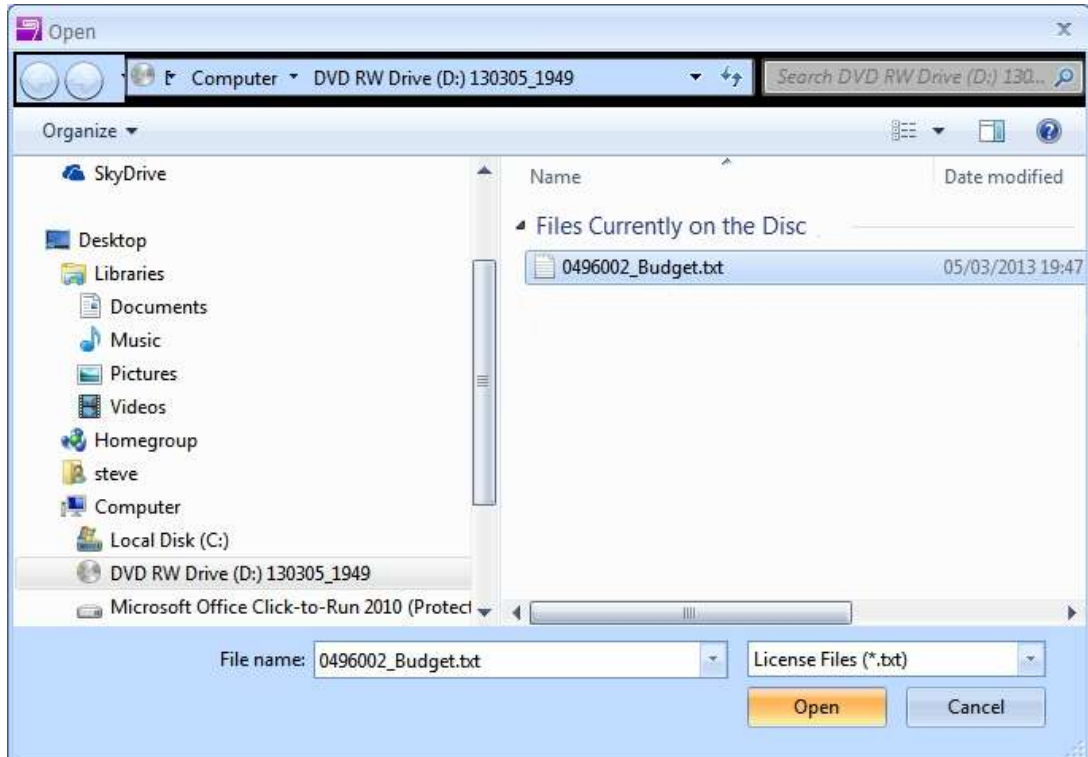
- Enter the License Code in the box provided and click **OK**.

### Entering the License Code from a file:

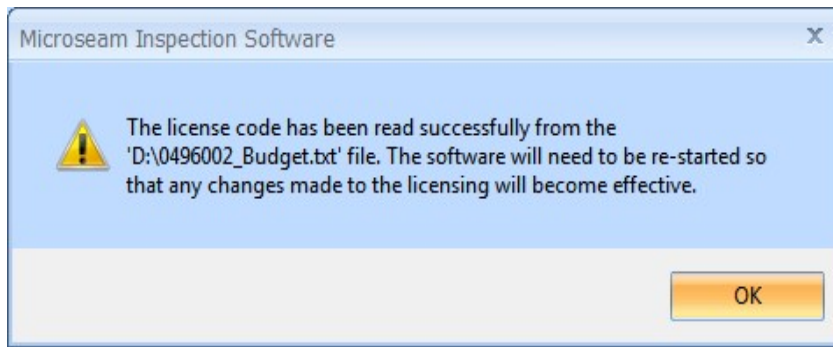
- Click the **Read new License Code from file** button.



A file-browsing window opens:



- Navigate to the drive/folder containing the license code file, click on the license code text file then click the **Open** button.



- Click the **OK** button.
- To exit Microseam from the 'Logged Off' window, click the **Close** button, which is the cross in the top right hand corner.

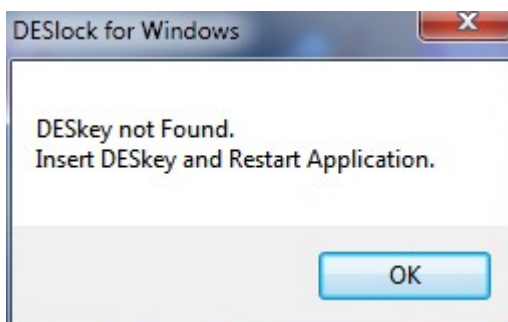


- Restart the Microseam program.

## 4 CONFIGURING MICROSEAM

The user should run Microseam and configure it to their requirements as described below.

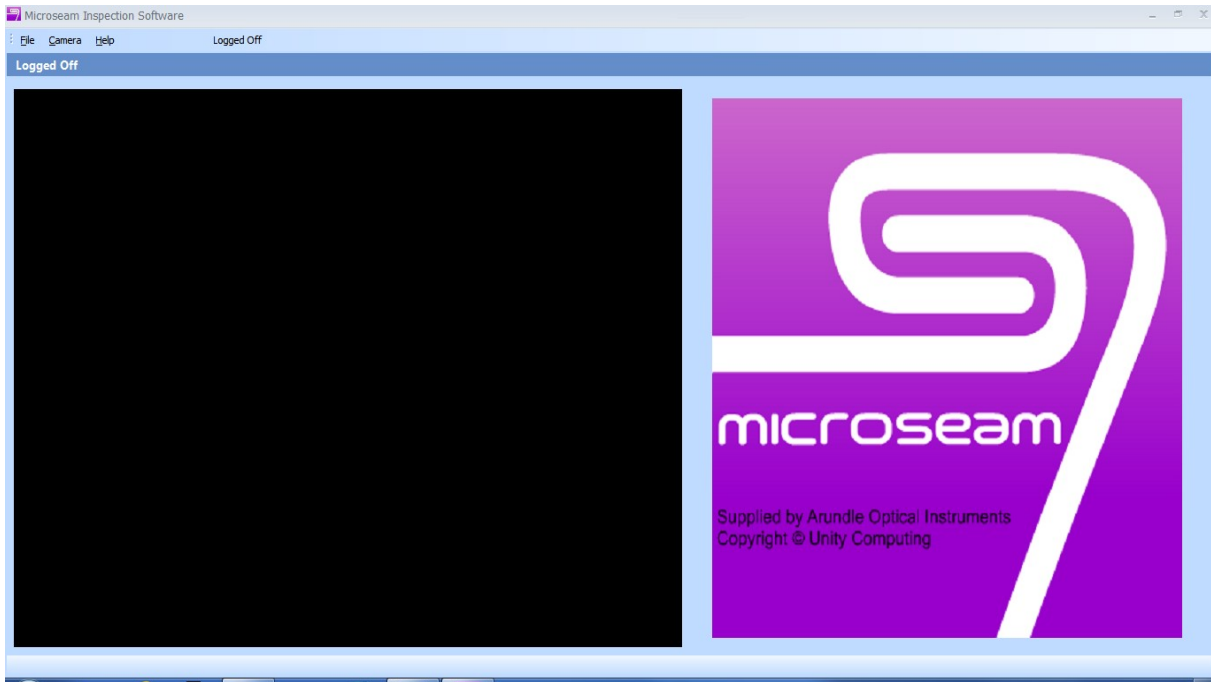
The program will not run without the camera connected and will generate the following message:



### 4.1 Start Microseam

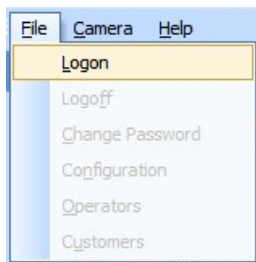
Start Microseam by double-clicking the icon on the desktop, or alternatively run it from the Windows Start Menu.

The Microseam program starts and the 'Logged Off' screen appears:

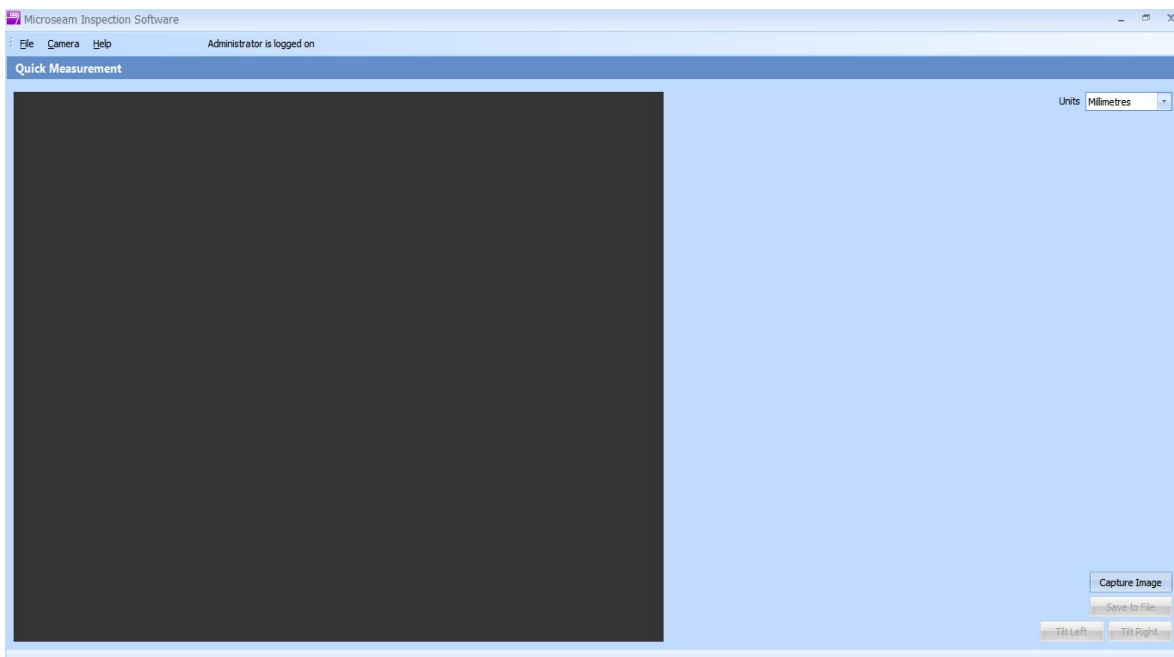


## 4.2 Logging On

- From the main top menu bar select the **File** option, and from the list select **Logon**.



- The 'Quick Measurement' screen appears showing 'Administrator is logged on':





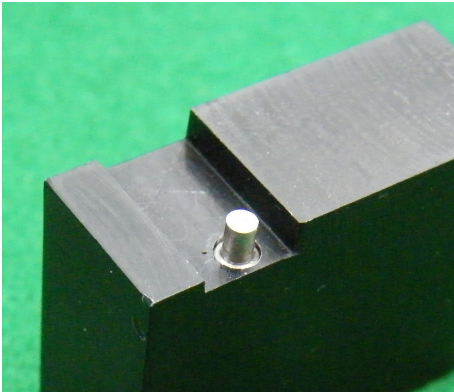
### 4.3 Calibrating the Camera

Before the camera can be used for taking measurements, it must be calibrated so that accurate measurements can be taken.

Calibration need only be performed the first time Microseam is used, unless the camera position or magnification is subsequently adjusted.

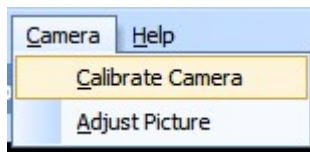
A metal cylinder, 2mm in diameter and embedded in a rectangular block, is supplied to enable calibration of the camera.

The calibration block is specially shaped with a channel so that it locates on the camera without the need to locate the image by moving the block.

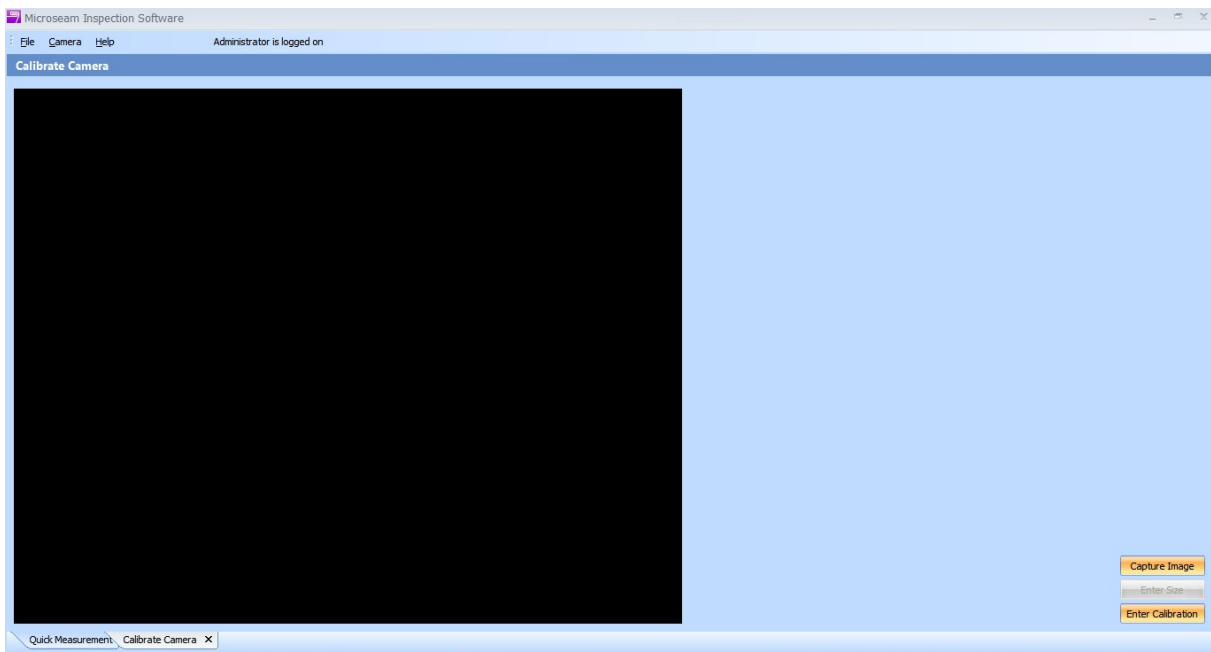


To calibrate the camera:

- From the main menu bar select **Camera** then **Calibrate Camera**.

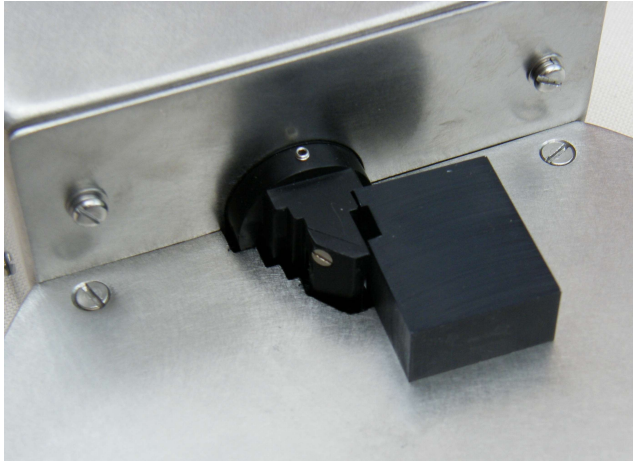


The 'Calibrate Camera' window appears:

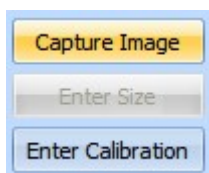


The large black area is the live output from the camera.

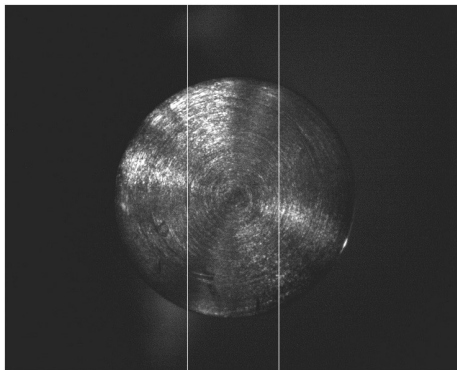
- Position the calibration block on the camera as shown below:



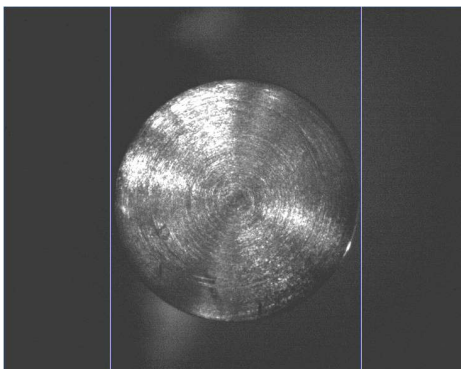
- Click the **Capture Image** button at the bottom right hand of the window:



The image is captured and appears in the window with two yellow vertical lines.

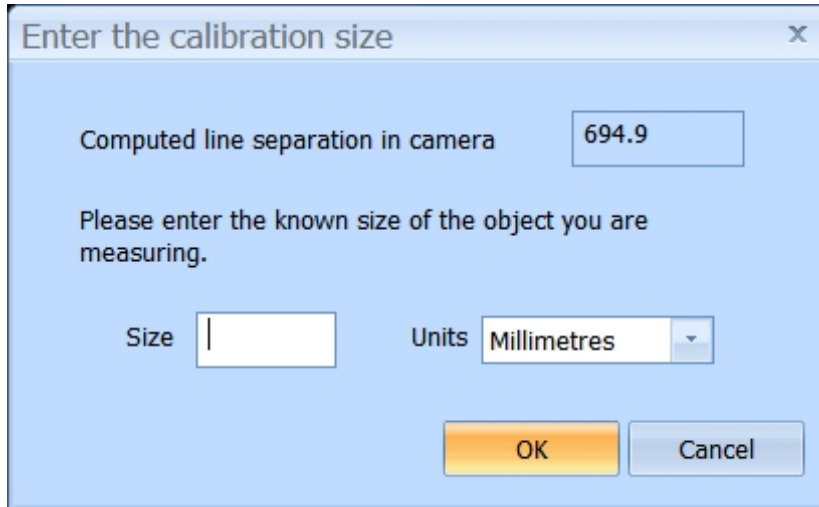


- Drag each of these lines in turn to the left and right sides of the cylinders diameter. As they are dragged into position the colour turns red and once positioned the colour turns blue.
- As an aid to positioning the lines accurately, if the right mouse button is clicked while on a line, an enlarged view appears. This can also be achieved by holding down any key while moving a line with the left button.

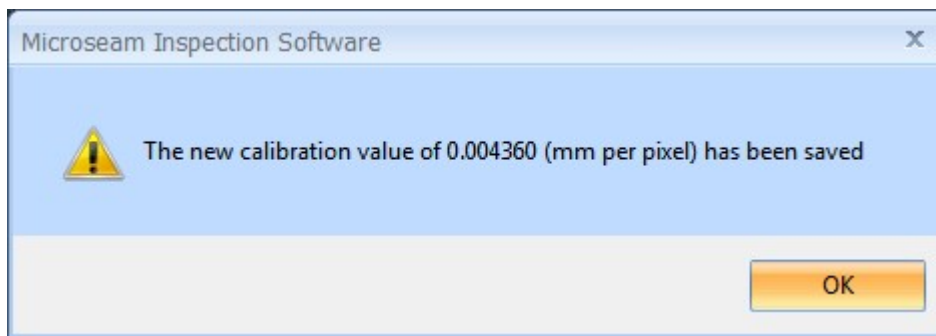


- Click the **Enter Size** button. Note: the 'Enter Size' button is grayed out until both lines have been moved.

The 'Enter the calibration size' box appears:



- Enter the known diameter of the cylinder in mm or inches. When satisfied click the **OK** button. A confirmation box appears:



- Click the **OK** button and this calibration is stored for use in all subsequent measurements.
- To exit from camera calibration click on the cross on the 'Calibrate Camera' tab at the bottom left of the screen.

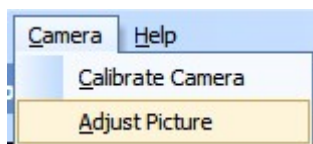


The 'Enter Calibration' button is provided as an alternative means of entering the calibration value manually without having to measure a cylinder.

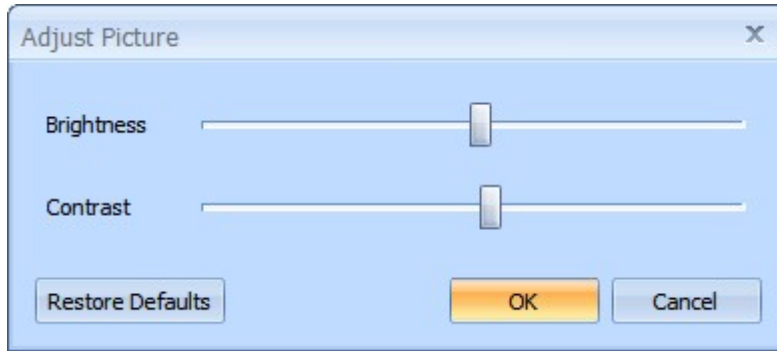
## 4.4 Adjusting the Camera

The camera can have its Brightness and Contrast adjusted to provide a satisfactory image of a seam. This must be done with a live camera image on screen and with a can positioned on the camera.

- From the main menu bar select **Camera** then **Adjust Picture**.



The 'Adjust Picture' box appears:

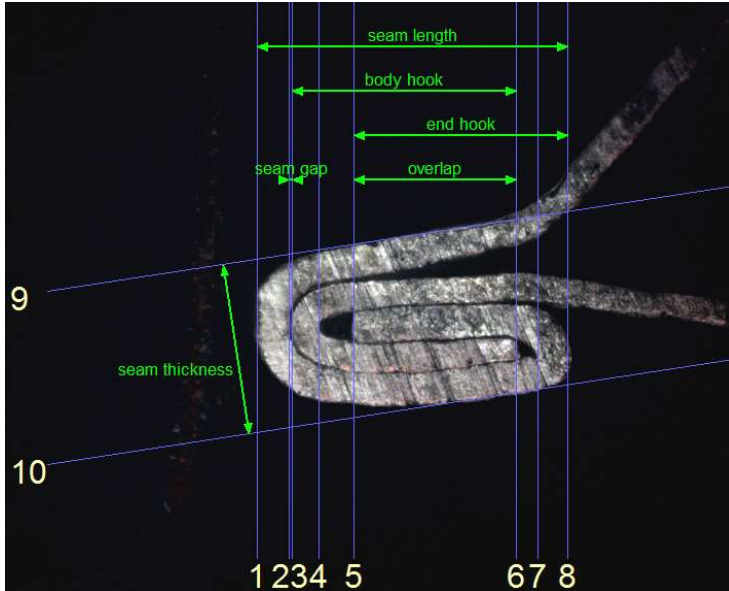


- Click on the **Brightness** or **Contrast** slider and drag to a new position. The image will change and when happy with the image quality, click the **OK** button.
- To return to the default settings click the **Restore Defaults** button then click **OK**.

## 5 USING MICROSEAM

### 5.1 Taking Measurements

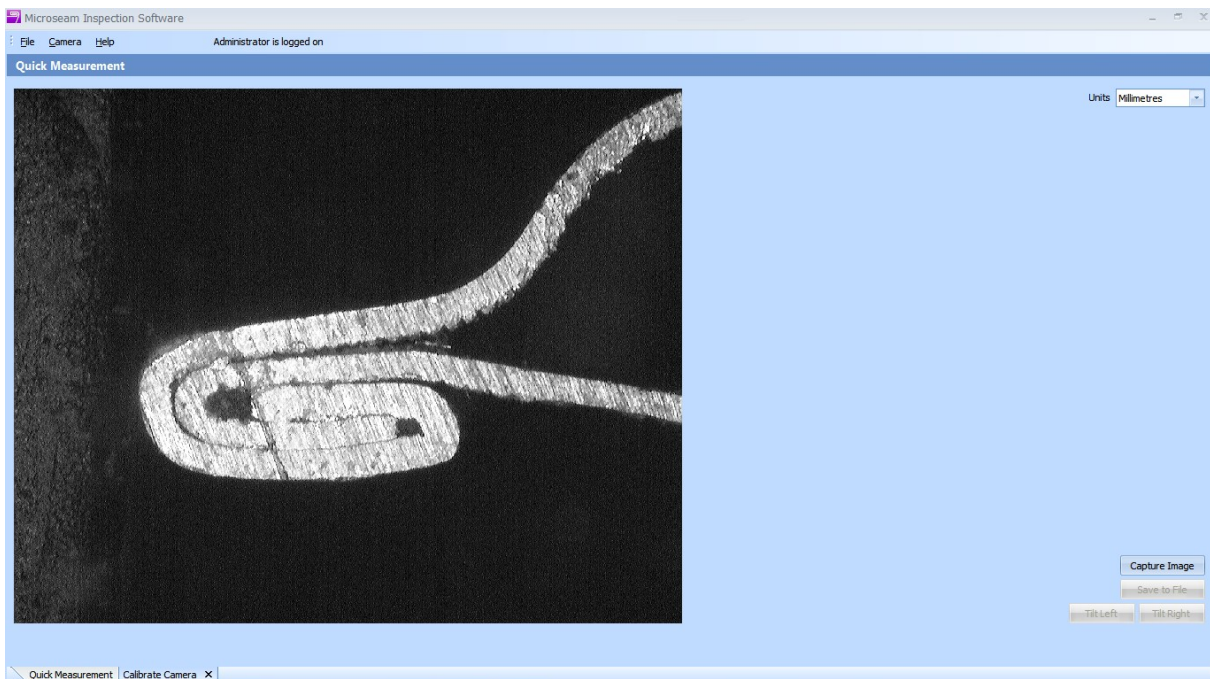
The example below shows a can seam showing 10 typical measurement points:



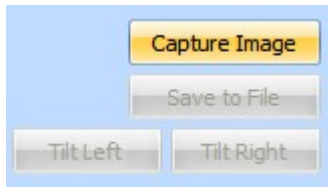
To measure the 'Seam length' and 'Seam Thickness' (as shown above), the user would take a can off the production line and capture an image of the seam using the camera then follow the procedure below.

With the 'Quick Measurement' screen displayed:

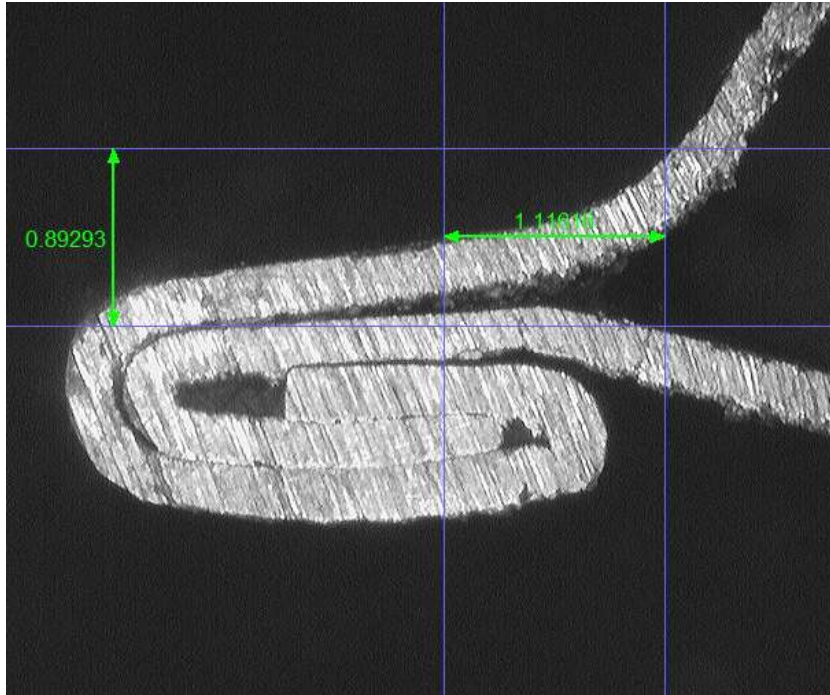
- Mount a can on the camera. A little practice is required to achieve a good image. The seam image will appear:



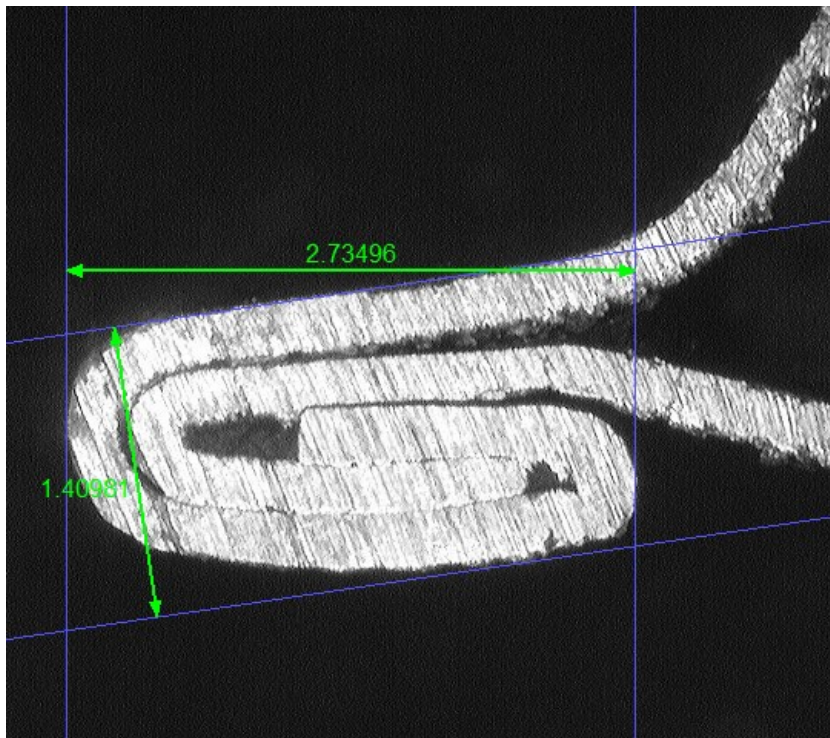
- Click the **Capture Image** button at the bottom right of the screen.



- Two blue horizontal and two blue vertical measurement lines appear on the image with dimensions:



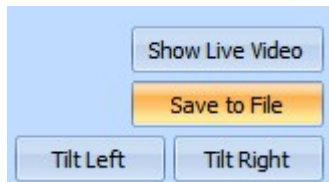
- Click on each line in turn and drag to the points that require measurement. While being dragged the lines turn red.



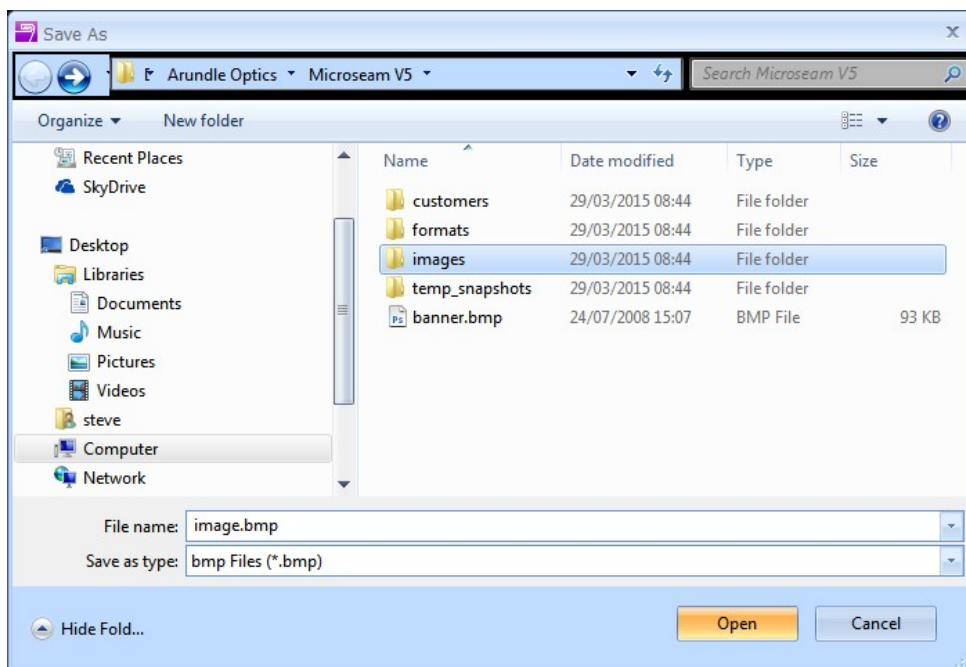
- The horizontal lines can be tilted to line up with the seam image by clicking the 'Tilt Right' and 'Tilt Left' buttons at the bottom right of the screen.



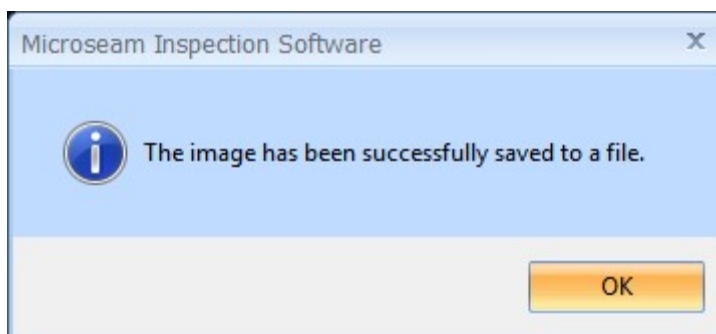
- If it is required to save the image in a file, click the **Save to File** button, bottom right of the screen.



- A 'Save As' window appears allowing the file name of the image and its location to be entered. The file will be saved as a Bitmap (BMP) file.



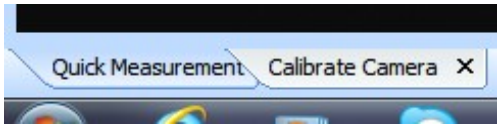
Confirmation of a successful save is given:



- Click the **OK** button.

## 5.2 Switching Between Screens Using Tabs

There is a 'Tabs' area at the bottom-left of the Microseam window, which shows all active screens.



A user can switch between the screens by clicking on the appropriate tab.

To close a 'Tab', click on the 'x' on the tab.

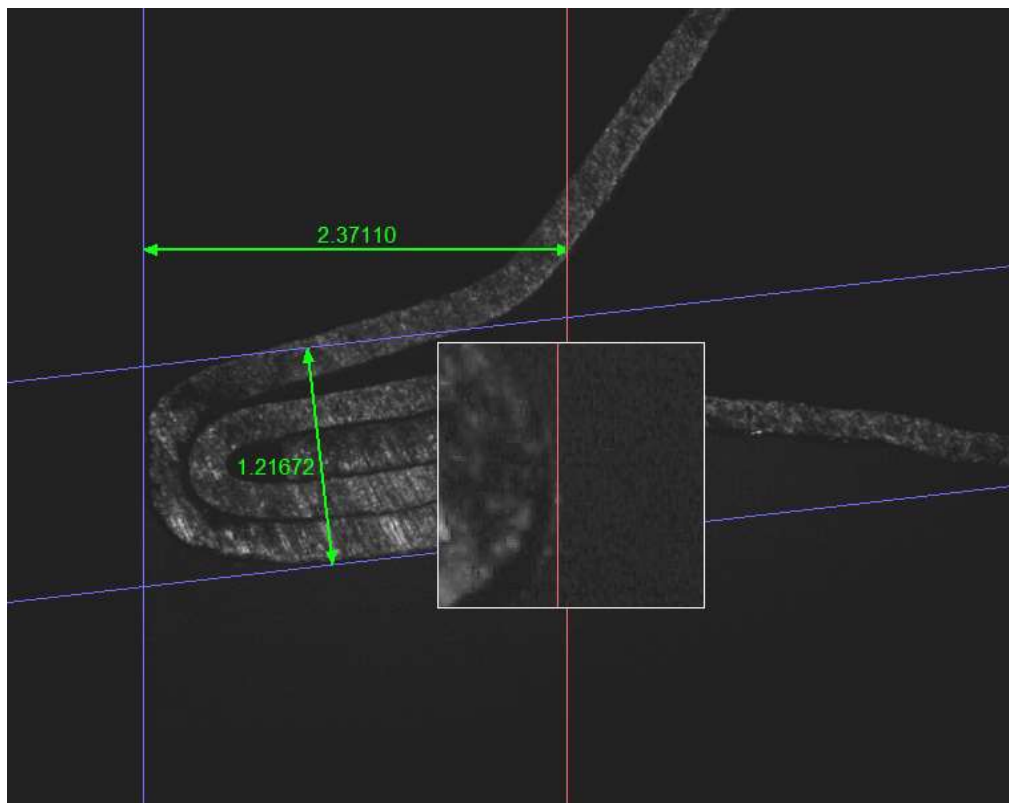
## 5.3 Zooming In

While taking measurements of a seam image, as an aid to positioning the lines accurately on the measurement features of the seam, an enlarged view can be obtained:

- Click on and drag a line with the **right** mouse button, an enlarged view appears.

OR

- Click on and drag a line with the **left** mouse button, and while dragging hold down any key. An enlarged view appears.



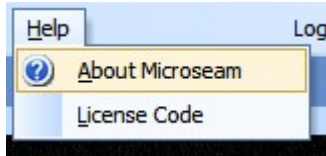
- The enlarged view box disappears when the mouse button or key is released.



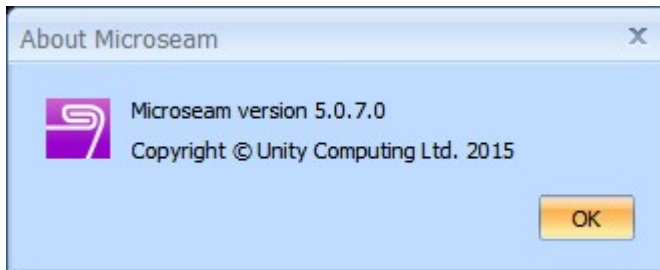
## 6 HELP

### 6.1 Displaying the Program Version

- From the main top menu bar select the **Help** option.



- Select **About Microseam**.
- A box giving the version of the Microseam program appears:

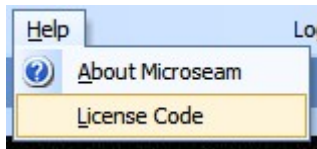


### 6.2 License Code

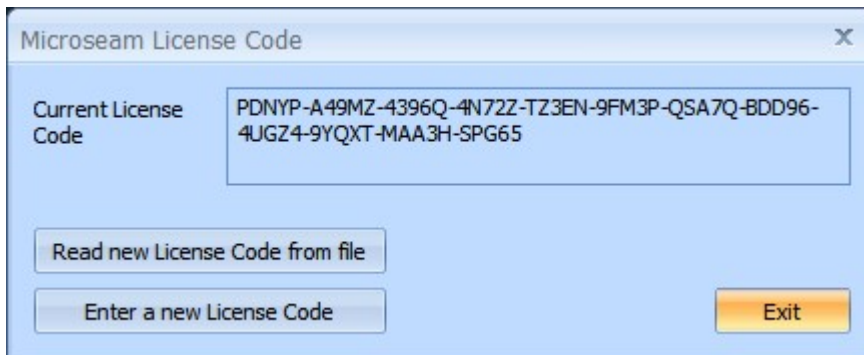
The software already installed contains all three versions of Microseam (Budget, Standard and Professional), which are selected by installing the appropriate license code (See Software Upgrade below).

The current installed license code can be viewed as follows:

- From the main top menu bar select the **Help** option then **License Code**.



A License Code box, giving the current license code of the Microseam program, appears.



- Click **Exit** to close the box.

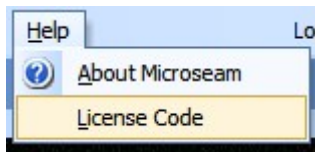
## 7 SOFTWARE UPGRADE

If the software purchased, and now installed, is the 'Budget' version, an upgrade to the 'Standard' or 'Professional' version can be purchased and enabled as described below.

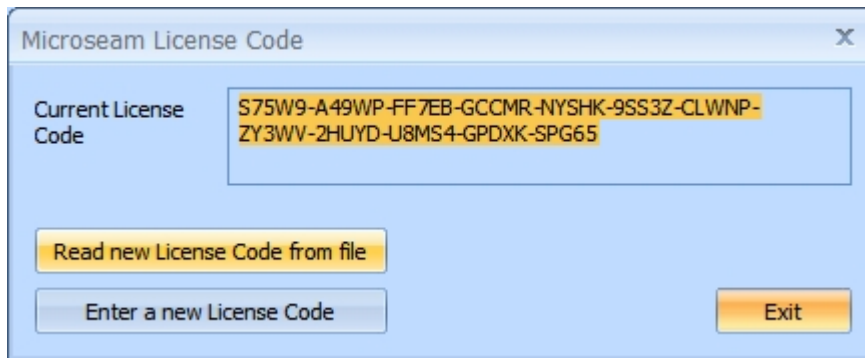
When an upgrade is purchased, a license code file will be supplied, either on CD-ROM or by email, together with instructions to copy the file to the PC running the Microseam software.

Then follow the procedure below:

- From the main top menu bar select the **Help** option then **License Code**.

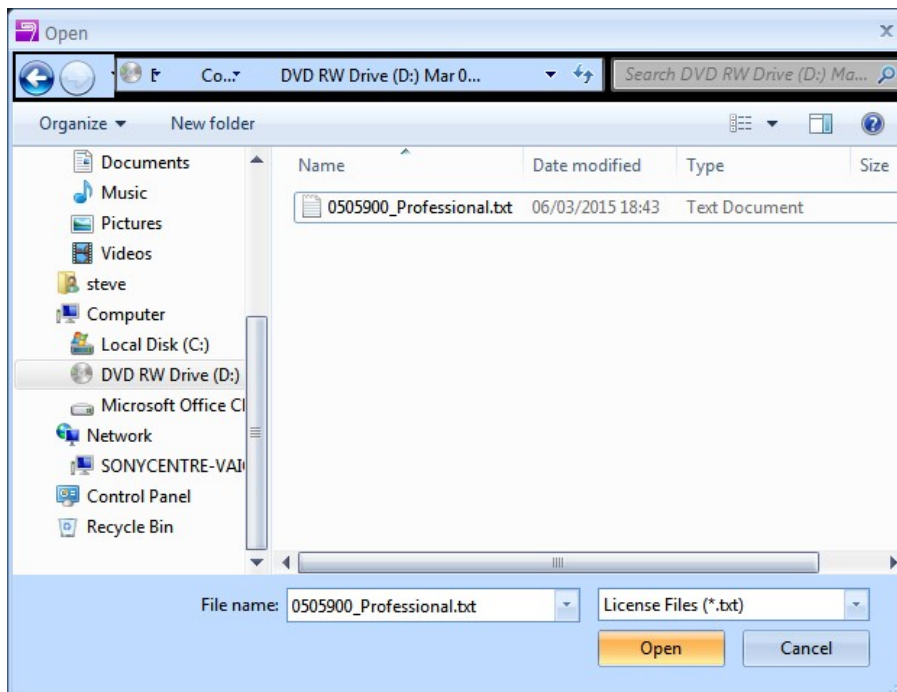


A 'Microseam License Code' box, giving the current license code of the Microseam program, appears:

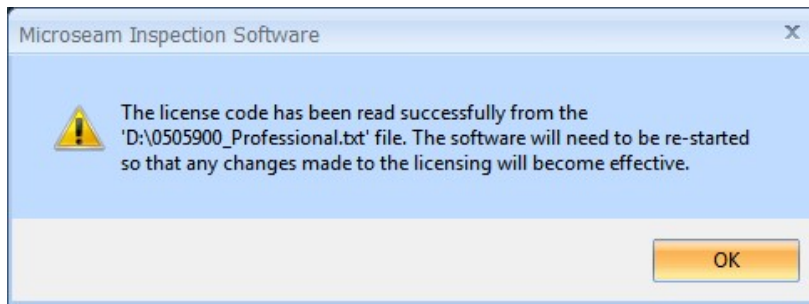


- Click on the Read new License Code from file button.

A file-browsing window opens:



- Navigate to the drive/folder containing the license code file, click on the license code text file then click the Open button.



- Click the **OK** button.
- Restart the Microseam program.

## 8 REMOVING MICROSEAM

It may be necessary to remove Microseam from a PC for various reasons, one being to install a new software version.

### IMPORTANT

The latest versions of the Microseam setup program (starting at version 5.0.7.0) will not remove any files in the 'c:\mis\_v5' folder so it is not necessary to make a backup of the files before removing these versions.

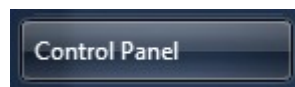
Versions prior to this will remove files from the 'c:\mis\_v5' folder so it is advisable to make a backup of this folder (and all sub-folders) before removing Microseam. After upgrading, copying the 'c:\mis\_v5' folder from the backup will ensure that all user data and program configuration is restored to the system.

- Disconnect the camera from the PC.

- Click on the Windows **Start** icon



- Select **Control Panel**



- Select **Programs Uninstall a Program**.



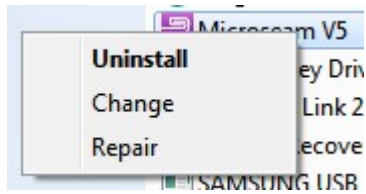
Programs  
Uninstall a program

A list of installed programs appears.

- Locate the entries for Microseam and DK2 DESkey.

Microseam V5	Arundle Optics	07/03/2015	37.9 MB	5.0.70
DK2 DESkey Drivers v7.37.0.62	Data Encryption Systems Limited	06/03/2015		7.37.0.62

- Right click the 'Microseam' entry and from the list that appears choose **Uninstall**.



- Follow the same procedure for the ' DK2 DESkey Drivers'.
- Reboot the PC.


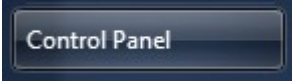
If a new version of Microseam is to be installed follow the procedure in Section 3 above.

If needed, copy to the folder 'C:\mis\_v5' any files that were backed up earlier and are required to be available on the new version.

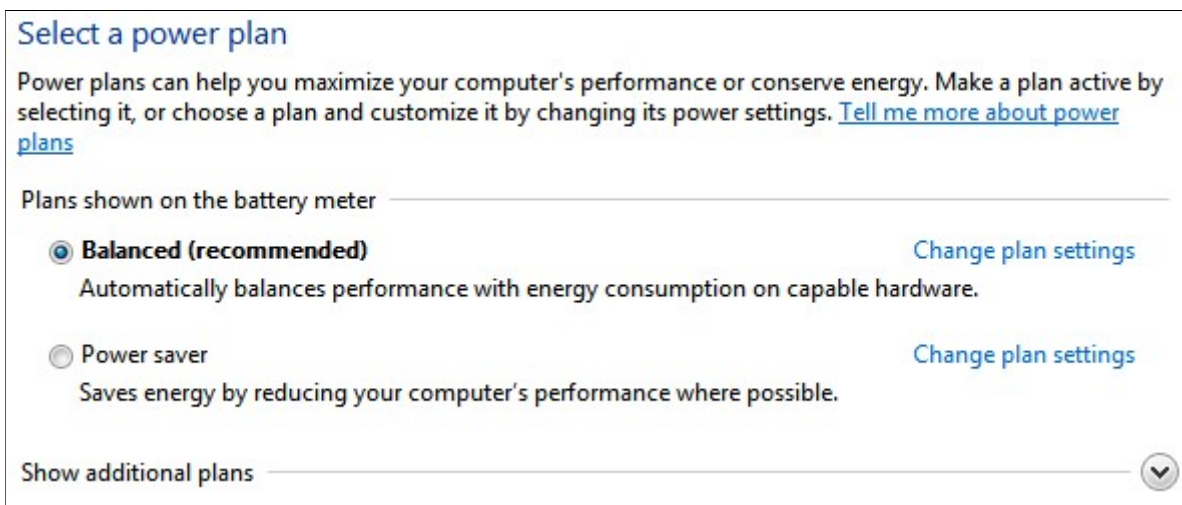
## 9 USB CAMERA PERFORMANCE

It has been observed when running Microseam on certain laptops that the camera update rate has been very slow, in particular, when the laptop is running under battery power. To cure this problem the following procedures need to be undertaken

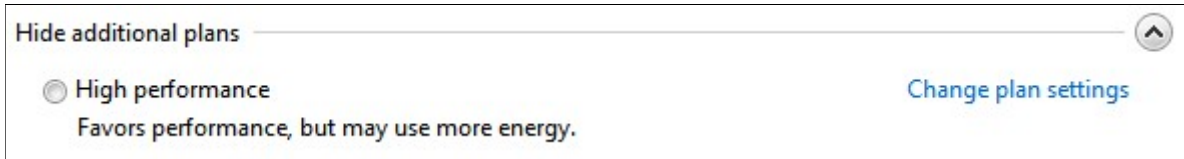
The procedure shown is for Windows 7.

- Click on the Windows **Start** icon 
- Select **Control Panel** 
- Select **Hardware and Sound**.
- Select **Power Options**.

The 'Select a power plan' screen appears:

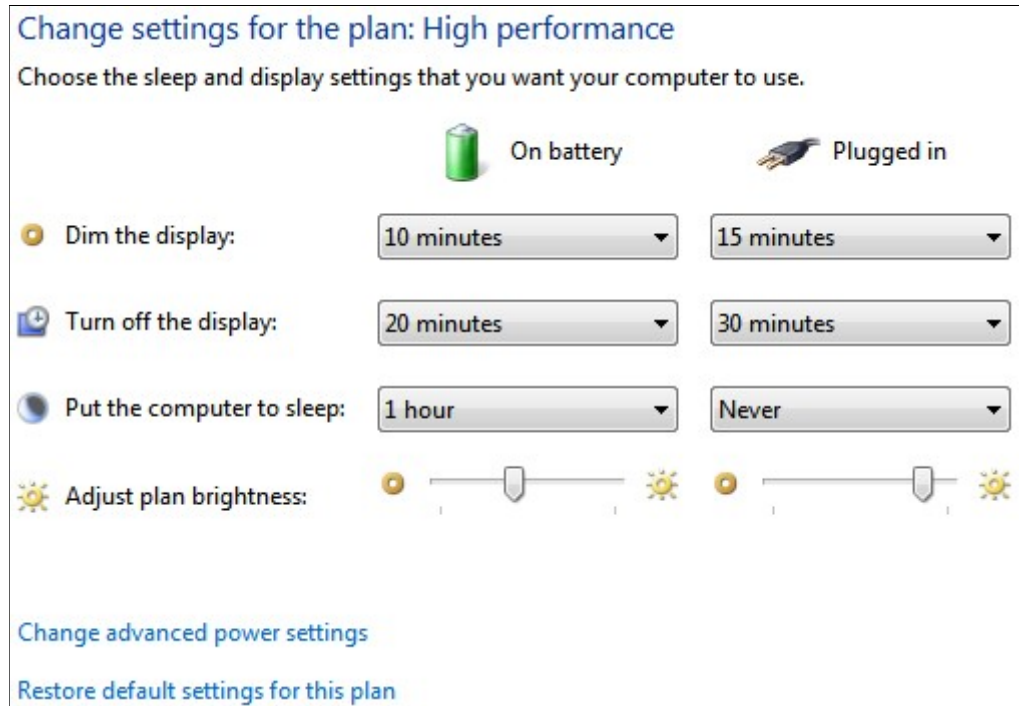


- To the right of 'Show additional plans' click on the down arrow.  
The following appears:

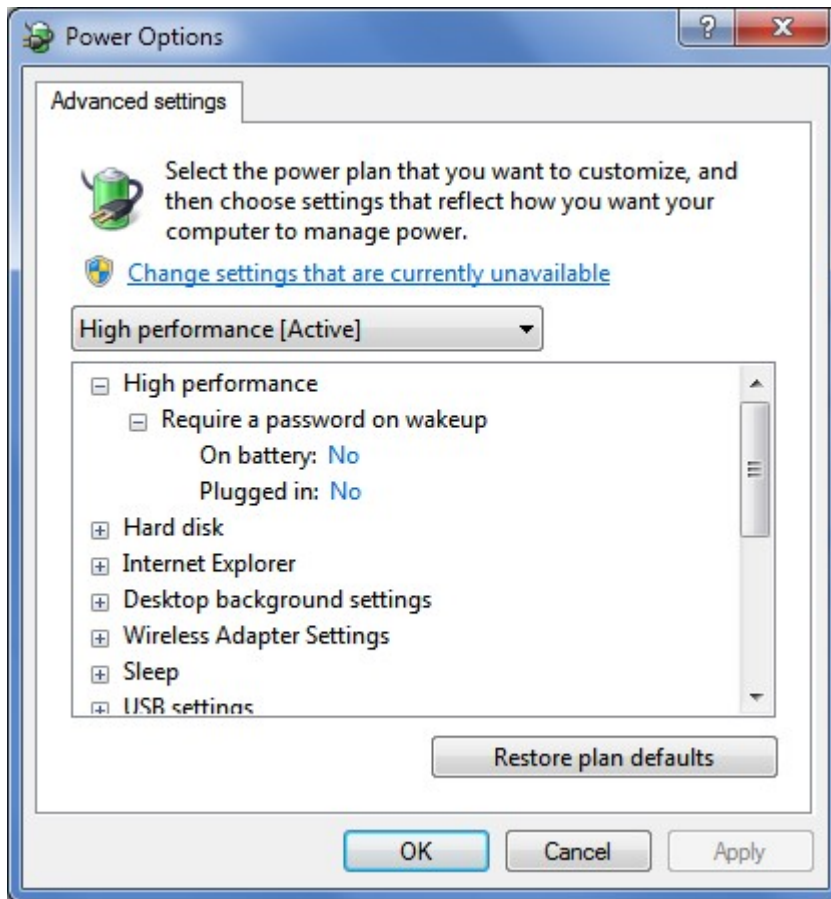


- Click on the **High Performance** button.
- Click on **Change plan settings**.

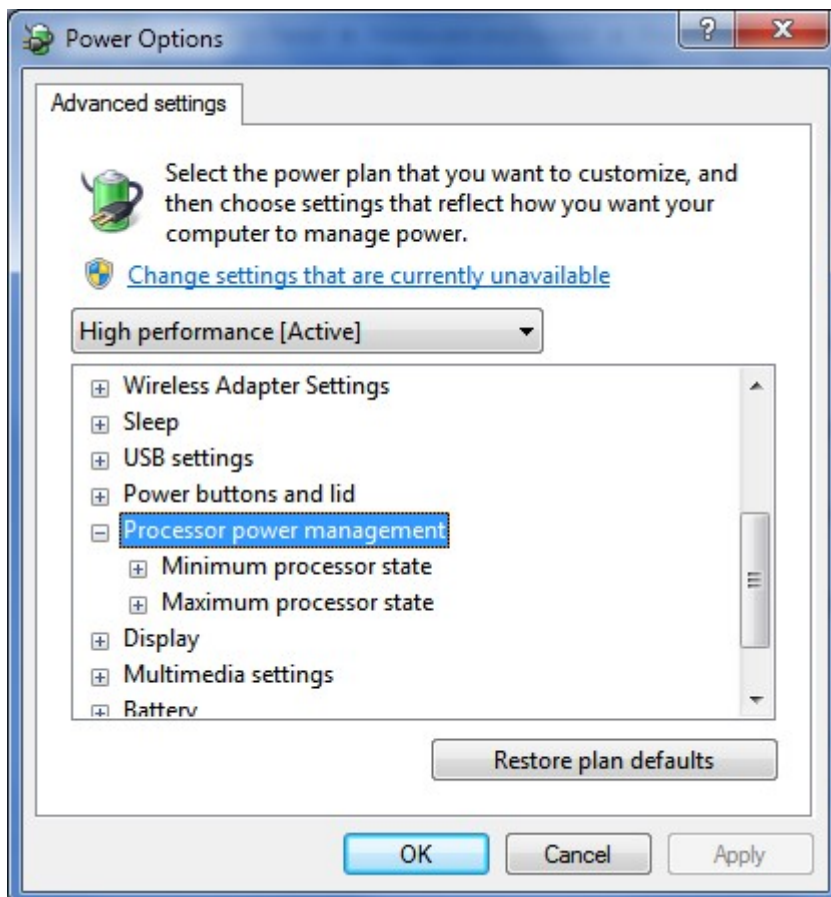
The following screen appears:



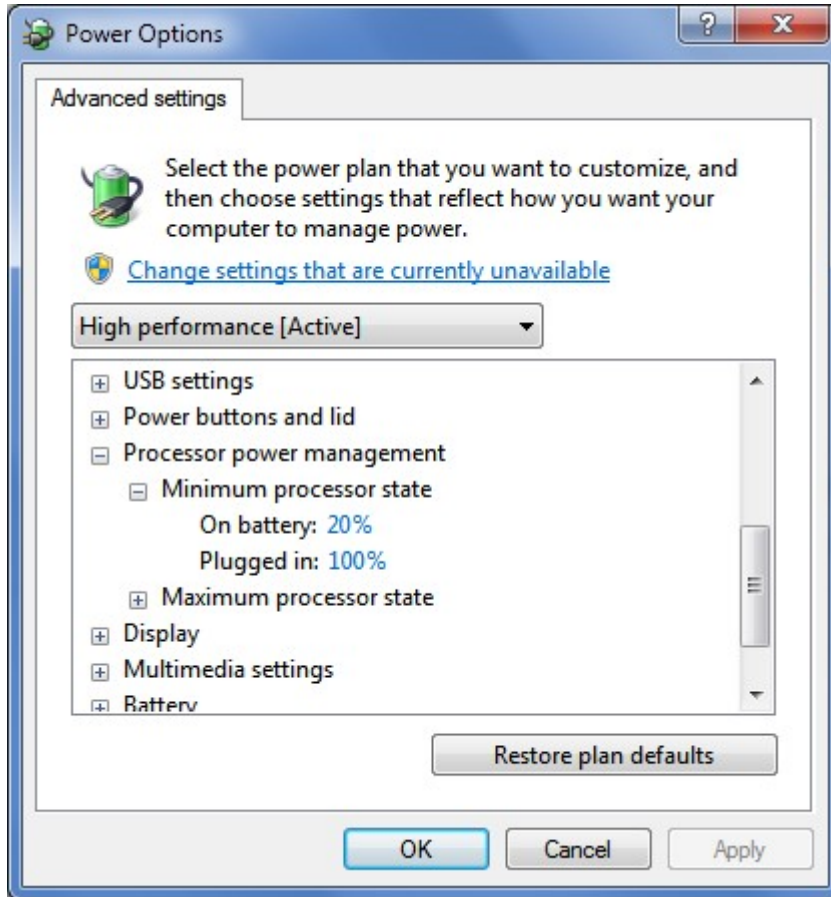
- Click on **Change advanced power settings**.
- The following screen appears:



- Scroll down to the entry **Processor power management** and click the boxed + sign on the left.



- Click the boxed + sign on the left of 'Minimum processor state'.



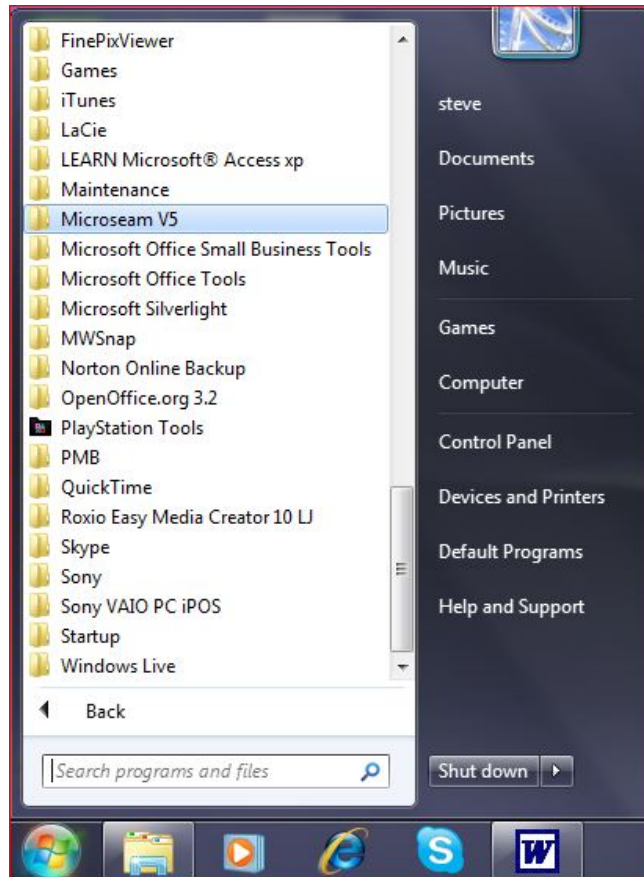
- Set 'On battery:' to **20%**.
- Set 'Plugged in:' to **100%**.
- Click the **OK** button.
- Close 'Control Panel'



## 10 USER GUIDE

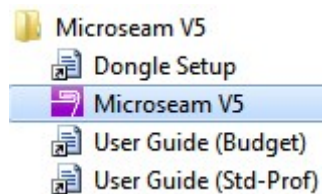
This User Guide can be found as a PDF file as follows:

- Click on the Windows **Start** icon  at the bottom left of the screen.
- Click **All Programs**, which will display a list of installed programs:



- Click on **Microseam V5**.

A list of Microseam programs will appear:



- Click on **User Guide (Budget)**.
- The User Guide in a PDF format appears.