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

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PRODUCED FOR ARUNDLE OPTICAL INSTRUMENTS

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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:

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🖟 Microseam V5
Welcome to the Microseam V5 Setup Wizard
The installer will guide you through the steps required to install Microseam V5 on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel < Back Next >
Hicroseam V5
Select Installation Folder
The installer will install Microseam V5 to the following folder. To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse". <u>Folder:</u> C:\Program Files (x86)\Arundle Optics\Microseam V5\ <u>Disk Cost</u>
Cancel < Back Next >
Confirm Installation
The installer is ready to install Microseam V5 on your computer. Click "Next" to start the installation.
Cancel < Back Next >



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:

DESlock for Windows	×
The dynamic link library DESKEY32 Please ensure the DESkey drivers a	
	ОК

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.

DK2 DESkey Drivers (AMD64/EM64T) - 7.37.0.62			×
Setup Type Choose the setup type that best suits your needs.			X
Where can your DK2 be found?			
 This machine. 			
O Using a DK2 Network Server.			
InstallShield	< Back	Next >	Cancel

• Select This machine and click the Next button.

Windows Security	×
Would you like to install this device software?	
Name: Data Encryption Systems Limited DESkey Publisher: Data Encryption Systems Ltd	
Always trust software from "Data Encryption Systems Ltd".	Install Don't Install
You should only install driver software from publishers y device software is safe to install?	you trust. How can I decide which

• Click the Install button.

DK2 DESkey Drivers (AMD64/EM64T) - 7.37.0.62			
	Setup Complete Setup has finished installing the DK2 DESkey Drivers (AMD64/EM64T).		
	K Back Finish Cancel		

• 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 <u>http://www.deskey.co.uk</u>.

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.

Driver Software Installation		×
Your device is ready to use		
DK2usb DESkey Dino-Lite Premier	Ready to use Ready to use	
		Close

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 **W** 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.

Microseam License Cod	e	x
Current License Code		
Read new License Code	from file	
Enter a new License	Code	Exit



• 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.

Microseam License Code	x
Current License Code	
Read new License Code from file	
Enter a new License Code	Exit

A file-browsing window opens:

) 🕘 🤎 🕅 Computer 🔹	DVD RW Drive (D:) 1303	305_1949 • + 7	Search DVD RW Drive (D:) 130 🔎
)rganize 🔻			
🝊 SkyDrive	* -1	Name	Date modified
Desktop		 Files Currently on the I 	Disc
🔚 Libraries		0496002_Budget.txt	05/03/2013 19:4
Documents			
🚽 Music			
🌛 Music 📄 Pictures	=		
	III.		
Pictures	IIII		
 Pictures Videos Homegroup steve 	E.		
 Pictures Videos Homegroup steve Computer 			
 Pictures Videos Homegroup steve Computer Local Disk (C:) 	=		
 Pictures Videos Homegroup steve Computer Local Disk (C:) DVD RW Drive (D:) 13030 			
 Pictures Videos Homegroup steve Computer Local Disk (C:) 			

• 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:

DESlock for Windows	×
DESkey not Found. Insert DESkey and Restart A	pplication.
(ОК

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 calibration	size	x			
Computed line separat	tion in camera	594.9			
Please enter the know measuring.	Please enter the known size of the object you are measuring.				
Size Units Millimetres					
	ОК	Cancel			

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

Microsea	m Inspection Software	x
4	The new calibration value of 0.004360 (mm per pixel) has been saved	
	ОК	

- 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.

Display Measurements	Calibrate Camera	x	
----------------------	------------------	---	--

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**.

	<u>C</u> amera	Help		
5	Calibrate Camera			
	Adjust Picture			

The 'Adjust Picture' box appears:

Adjust Picture	x
Brightness	
Contrast	
Restore Defaults	OK Cancel

- 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 showing10 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.

S	how Live Video
	Save to File
Tilt Left	Tilt Right

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

S	Show Live Video
	Save to File
Tilt Left	Tilt Right

• 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.

	ndle Optics 🝷 Mie	liuse		- + ₇	Search Microsear	1115	
rganize 🔻 🛛 New	folder					•	(
📃 Recent Places		*	Name	Date modified	Туре	Size	
SkyDrive			le customers	29/03/2015 08:44	File folder		
			l formats	29/03/2015 08:44	File folder		
Desktop			🍌 images	29/03/2015 08:44	File folder		
Documents			temp_snapshots	29/03/2015 08:44	File folder		
Music Pictures Videos steve			🖻 banner.bmp	24/07/2008 15:07	BMP File		93 KE
Computer							
🙀 Network		•					
File name:	image.bmp						
Save as type:	omp Files (*.bmp)						

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.

PDNYP-A49MZ-4396Q-4N72Z-TZ3EN-9FM3P-QSA7Q-BDD96- 4UGZ4-9YQXT-MAA3H-SPG65
ode from file
4

• 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**.

<u>H</u> elp		Lo
0	About Microseam	
	License Code	

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

Microseam License	e Code	x
Current License Code	S75W9-A49WP-FF7EB-GCCMR-NYSHK-9SS3Z-CLWNP- ZY3WV-2HUYD-U8MS4-GPDXK-SPG65	
Read new License		

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

A file-browsing window opens:

P Open				x
Co*	DVD RW Drive (D:) Mar 0		:h DVD RW Drive (D:) N	Ма 🔎
Organize 🔻 New folder			•	0
Documents	Name	Date modified	Туре	Size
 Music Pictures 	0505900_Professional.txt	06/03/2015 18:43	Text Document	
Videos				
Computer				
Local Disk (C:)				
Microsoft Office Cl				
Network SONYCENTRE-VAI				
Control Panel				
Recycle Bin				
T	• <u> </u>		5 7. (0.1.0)	• •
File name:	0505900_Professional.txt		Files (*.txt)	
		Ор	en Cancel	

• 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



Programs Uninstall a program

• Select 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

Control Panel

• 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



Control Panel

- Select Control Panel
- Select Hardware and Sound.

• Select Power Options.

The 'Select a power plan' screen appears:

Select a power plan

Power plans can help you maximize your computer's performance or conserve energy. Make a plan active by selecting it, or choose a plan and customize it by changing its power settings. <u>Tell me more about power plans</u>

Plans shown on the battery meter

Balanced (recommended) Change plan settings
 Automatically balances performance with energy consumption on capable hardware.

Power saver

Change plan settings

()

Saves energy by reducing your computer's performance where possible.

Show additional plans

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

Hide addition	nal plans		(>
	erformance performance, but may use more e	nergy.	Change plan settings
•	Click on the High Perfor Click on Change plan se		
	The following screen app	-	
	Change settings for the p Choose the sleep and display set	and the second se	uter to use.
		On battery	Plugged in
	Oim the display:	10 minutes 🔹	15 minutes 🔹
	Turn off the display:	20 minutes 💌	30 minutes 🔹
	Put the computer to sleep:	1 hour 💌	Never -
	🔆 Adjust plan brightness:	• ×	o ×
	Change advanced power settings		
	Restore default settings for this p	lan	

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

Power Options	? ×
Advanced settings	
Select the power plan that you want to customize then choose settings that reflect how you want yo computer to manage power. <u>Change settings that are currently unavailable</u> High performance [Active]	
High performance	
Require a password on wakeup	
On battery: No	E
Plugged in: No	
Hard disk Hard disk	
Internet Explorer	
Desktop background settings	
Wireless Adapter Settings	
I USB settings	-
Restore plan defau	ılts
OK Cancel	Apply

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

Power Options Advanced settings	? X
Select the power plan that you want to customize, then choose settings that reflect how you want yo computer to manage power.	
High performance [Active]	
Power buttons and lid	_
 Processor power management Minimum processor state 	
Maximum processor state	E
Display	
Multimedia settings	
I Batterv	•
Restore plan defau	Ilts
OK Cancel	Apply

• 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:

- Microseam V5 Dongle Setup Microseam V5 User Guide (Budget) User Guide (Std-Prof)
- Click on User Guide (Budget).
- The User Guide in a PDF format appears.