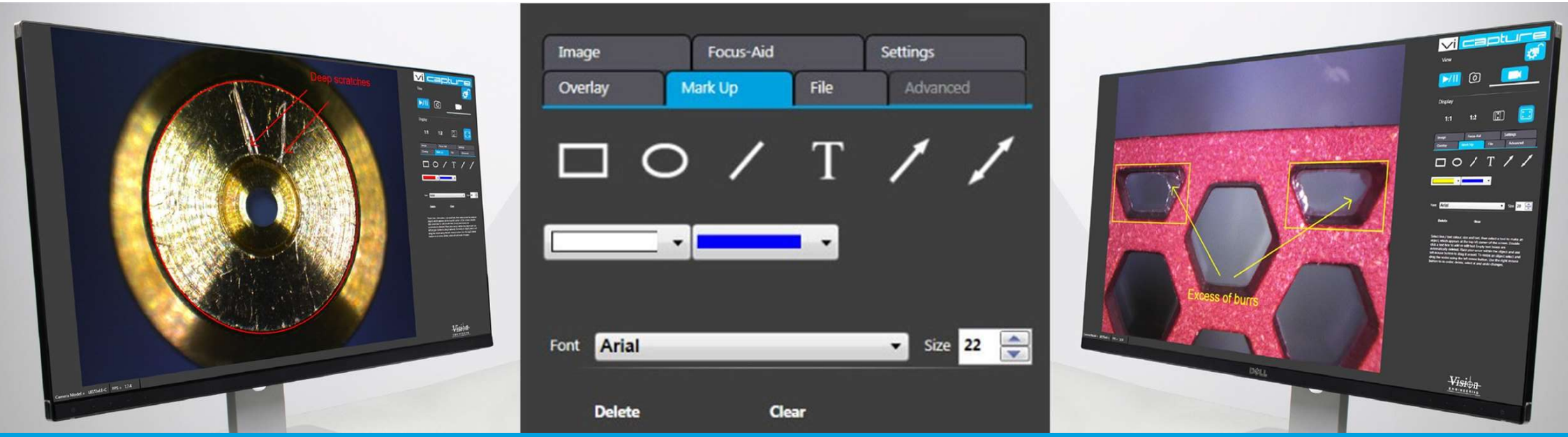
vi capture

Image capture & mark up software

Vision ENGINEERING



LIT5297-ISS-03

User Manual

CONTENTS

1. Introduction 6
   1.1 General 6
   1.2 Main features 6
2. Initial set-up 7
   2.1 System requirements 7
   2.2 Installing the software. 8
   2.3 Starting the software. 11
   2.4 Connecting the camera. 12
3. Image capture 13
   3.1 Still image capture and storage 13
   3.2 Video capture and storage 13
4. Image adjustment. 14
   4.1 Supervisor mode 14
      4.1.1 Entering/exiting supervisor mode 14
      4.1.2 Setting a new password 14
   4.2 Auto exposure 15
      4.2.1 Standard user access 15
      4.2.2 Supervisor access. 15

4.3 Auto white balance 15
4.3.1 Standard user access 15
4.4 Focus aid 16
4.5 Sizing the display area 17
5. Advanced features 18
5.1 Advanced image control 18
5.1.1 Mirror 18
5.1.2 Timestamp 18
5.1.3 Colour Filter 18
5.1.4 Frame rate adjustment 18
5.1.5 Defect Pixel Correction 18
5.2 Mark up 19
5.2.1 Shapes, lines and arrows 19
5.2.2 Text mark up 20
5.3 Overlay 21
5.3.1 Crosshair 21
5.3.2 Overlay files 22
6. Settings 24
6.1 Camera selection 24
6.2 Load a settings file 24
6.3 Save the current settings 25

6.4 Managing the settings files 26
6.4.1 Save As... 26
6.4.2 Save 26
6.4.3 Import 26
6.4.4 Remove 26
7. File 27
7.1 Load a still image 27
7.2 File type selection 27

1. Introduction

1.1 General

ViCapture™ adds image capture and mark up capabilities to Vision Engineering's Lynx EVO and Mantis ranges of inspection solutions.

1.2 Main features

Image capture

ViCapture™ can capture an image or up to 60 seconds of video. Still images can be saved as .PNG, .JPG and .BMP files whilst video can be stored in .AVI format. The design allows maximum emphasis on the live and captured image, making annotation easier and clearer.

Saved images can be reloaded for subsequent inspection and/or mark up.

Annotating captured images

Images can be marked up with shapes, lines, text and arrows in various colours with text in any of the fonts available on the PC.

Overlays

Images can also be enhanced with a coloured crosshair and imported overlays.

Imported overlays must be the same pixel dimensions as the image, saved as .PNG files with a transparent background.

Image control

ViCapture™ software allows the user to manually or automatically control exposure and white balance. In addition, the Focus Aid feature provides a relative scale of sharpness so the user can establish the best possible focus.

Advanced features

These features (only accessible in Supervisor mode - see *page 14*) include mirroring the image, adding a time stamp, and adjusting frame rate.

2. Initial set-up

2.1 System requirements

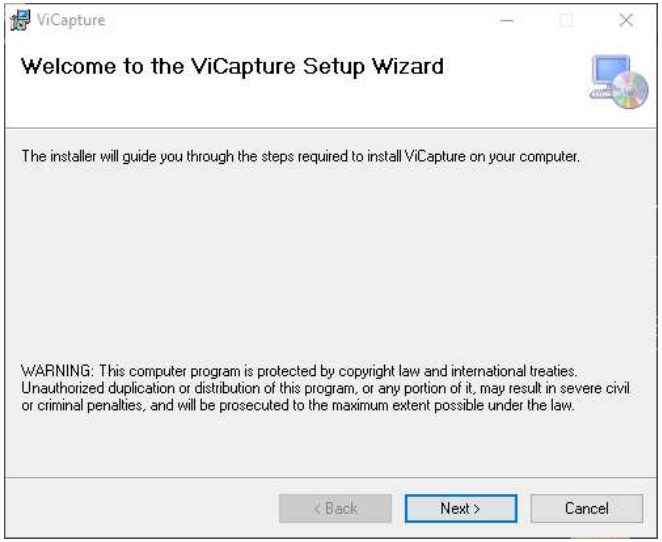
The following are the minimum system requirements:

- **Operating system** Microsoft® Windows® 11 or Microsoft® Windows® 10 (64-bit)
- **CPU type** Intel® Core™ i5, with CPU clock of 2.5 GHz
- **Chipset** Intel H81 chipset, or equivalent
- **Display card** Dedicated video graphics card, capable of 1600x1200 with live video streaming, or Intel HD4000 “on-board” video graphics card
- **Display resolution** 1600x1200
- **Memory** 4GB
- **Disk space** 1GB SDD/HDD - for installation
- **USB** USB3.1 ports
- **Other** Windows-compatible mouse and keyboard

2.2 Installing the software

- Insert the ViCapture™ USB stick supplied into your PC.
- Navigate to the USB's content and double click on the Setup.exe file.
- The ViCapture™ welcome screen will be displayed (*Figure 1*):

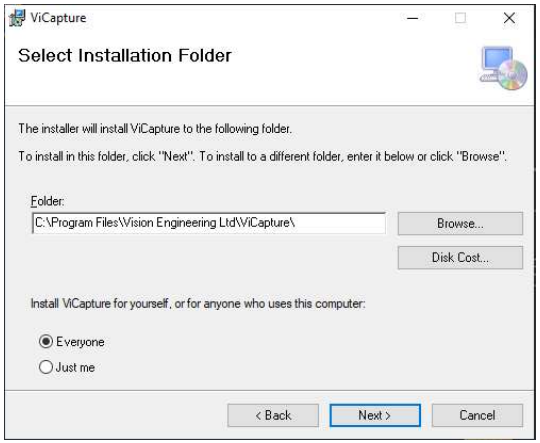
Figure 1: ViCapture™ welcome screen



- Click the **Next>** button.

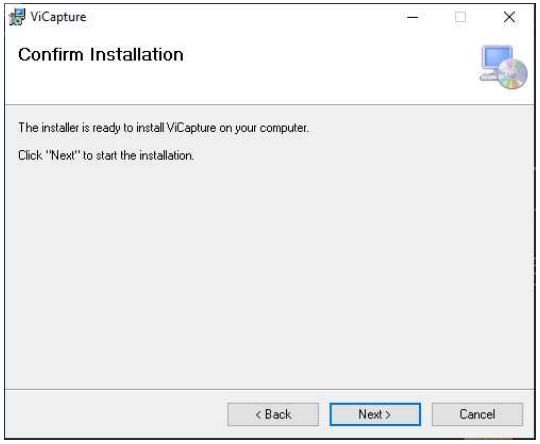
- The **Select Installation Folder** dialog box will be displayed.

Figure 2: Select Installation Folder



- Follow the instructions on the dialog box and then click the **Next>** button. The Confirm Installation dialog box will be displayed.

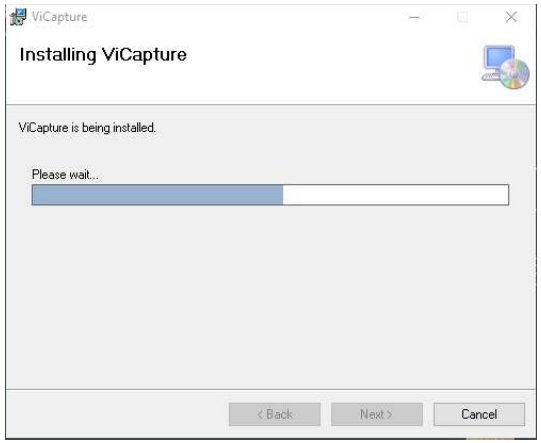
Figure 3: Confirm Installation



- Click **Next>** to complete the installation.

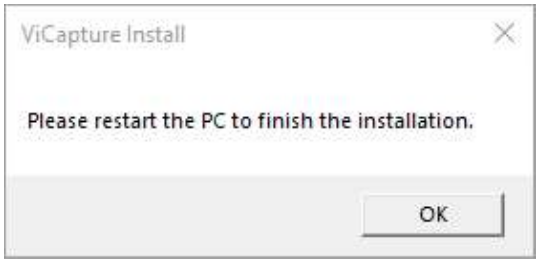
The **Installing Vicaptue™** dialog box will be displayed.

Figure 4: Installing Vicaptue™



When the installation is complete, the following screen will be displayed.

Figure 5: Installation Complete



Click **OK** and reboot the PC, and remove the USB stick.

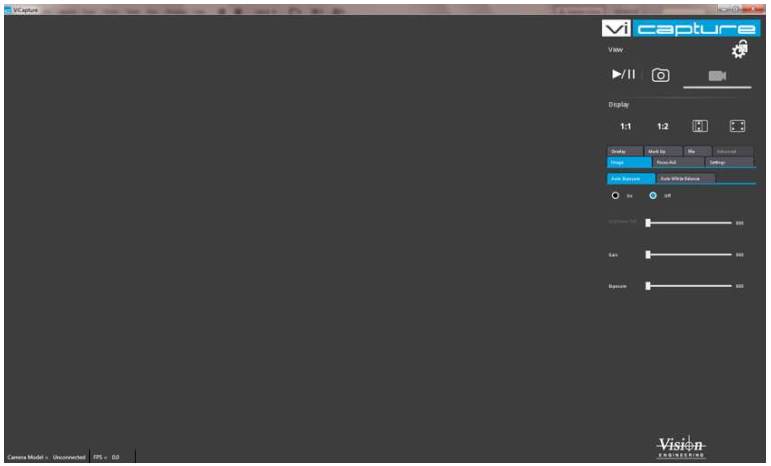
2.3 Starting the software

- Double click the ViCapture™ logo on the PC's desktop screen or a single click from the icon in the start menu.

Figure 6: ViCapture™ start-up screen

- After the start-up screen has been displayed, the initial screen will be displayed.

Figure 7: ViCapture™ initial screen



- Select the required language from the drop down list, located under the settings tab if necessary.

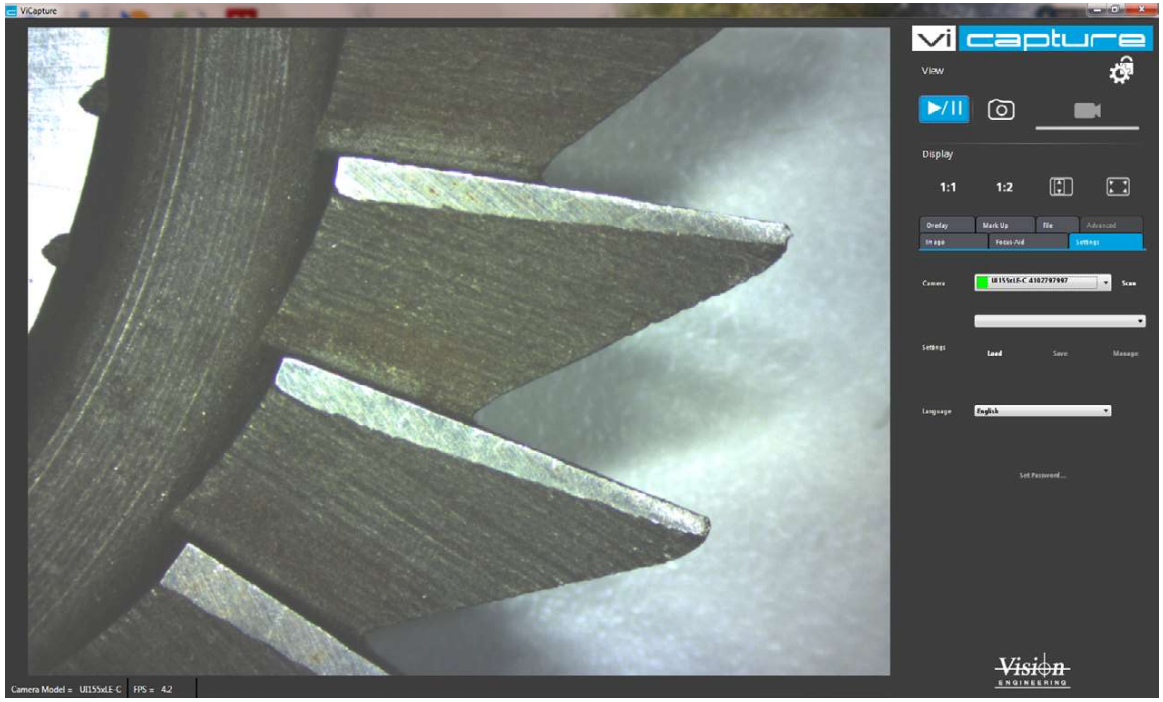
2.4 Connecting the camera

- Connect the camera output from the Vision device to a USB 3 port on the PC.

When using a device for the first time there will be a small delay as the PC detects the device. This is an action of the operating system and not ViCapture.

- Click on the **Settings** tab and then click on **Scan**.
- Select the required camera from the drop down list if necessary, and its image will be displayed.

Figure 8: ViCapture™ device scan screen



3. Image capture

If the quality of the image displayed requires improvement, refer to *Section 4 Image adjustment*.

3.1 Still image capture and storage

- When the **play/pause** button has a blue background ( ) the image displayed is live.
- Arrange the object such that the image displayed is the image to be captured and click the **play/pause** button. The background will turn grey ( ) and the captured image will be displayed.

If you wish to mark up the image or import an overlay before it is saved, see *page 19* **or** *page 21* **respectively.**

- To save the captured image, click . The **Save as** window will be displayed.

To set the type of file that will be saved (.PNG, .JPG or .BMP), see *page 27*.

- Navigate to the required folder if necessary, change the suggested file name as appropriate and click the **Save** button.

To retrieve a saved still image, see *page 27*.

3.2 Video capture and storage

- When the play/pause button has a blue background ( ) the image displayed is live.
- Click the video capture icon . The **Save as** window will be displayed.
- Once you have navigated to the location the file is to be saved, name the file and press save. The software will then start to record. Recording will terminate after 1 minute or earlier if the record button is pressed again.
- Click on to pause the recording. However during this time the recording count down timer will still be running. Press the button again will activate the recording again.

4. Image adjustment

There are two levels of image adjustment: user level and supervisor level. The supervisor level is password protected.

4.1 Supervisor mode

The supervisor mode enables users to access extra image adjustments and other advanced features of the software.

4.1.1 Entering/exiting supervisor mode

- To enter the supervisor mode, click the button and enter the password (default password: **Vision**) and click **OK**.
- The supervisor icon will be displayed.
- To exit the supervisor mode, click the unlocked supervisor button .

4.1.2 Setting a new password

- To set a new password, enter the supervisor mode and click on the **Settings** tab.
- Click **Set Password...**. The screen below will be displayed.

Figure 9: Change Supervisor Password screen

- Enter the current password, the new password and confirm the new password then click **OK**.

The new password must be at least 8 characters, contain at least one capital letter, one lower case letter and one number.

4.2 Auto exposure

4.2.1 Standard user access

- Click the **Image** tab. The **Auto Exposure** tab will be highlighted.
- With **Auto Exposure** set to **Off**, the **Gain** and **Exposure** settings can be manually adjusted by dragging the appropriate marker along the value bar. The **Brightness Ref** feature is not accessible.
- By clicking the **On** radio button, the **Brightness Ref** setting becomes adjustable whilst **Gain** and **Exposure** are not.
- Adjust the **Brightness Ref** value as required and the **Gain** and **Exposure** will automatically adjust. Priority is set so that **Gain** will adjust in preference to **Exposure** until the gain limit is reached.

4.2.2 Supervisor access

- In the Supervisor mode (see *page 14*), in addition to the settings available in the standard user mode, the **Gamma** settings are displayed. **Black Level** and **Colour Filter** may also be seen depending on the camera in use. These functions are only available on specific models.
- The values for these settings can be manually adjusted with **Auto Exposure** on or off.

4.3 Auto white balance

4.3.1 Standard user access

- Click the **Image** tab and then the **Auto White Balance** tab.
- Click the **On**, **Off** or **Once** button as required. Turning **On** will leave the camera in continuous auto white balance mode. Turning **Off** will leave the last white balance settings active. Pressing the **Once** button will prompt the camera to run a single instance white balance.

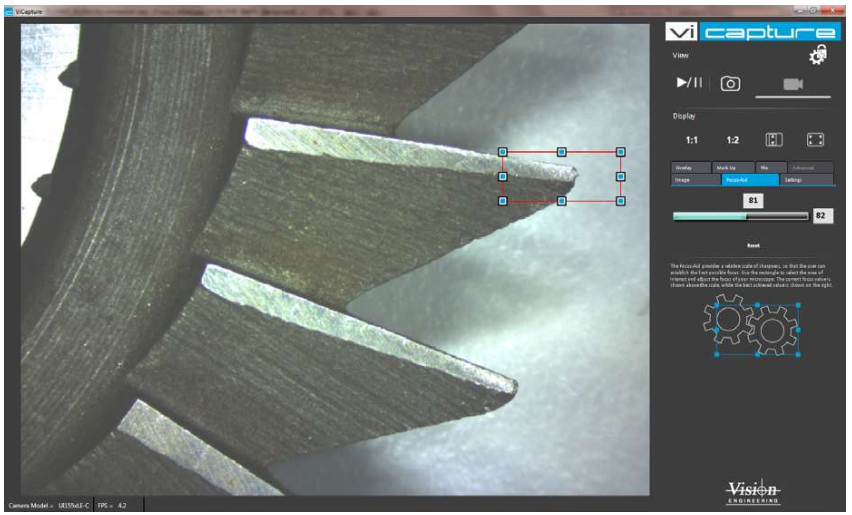
When Auto White Balance is set to off, the current white balance settings are kept.

4.4 Focus aid

The Focus Aid feature provides a relative scale of sharpness so the user can establish the best possible focus as follows:

- Click the **Focus Aid** tab. An adjustable rectangle will appear in the top left corner of the image.
- Move the rectangle over the area of interest and adjust its size if required.
- Adjust the focus of the Vision instrument in use. The current focus value is shown above the scale (located to the right of the image - see below) whilst the maximum focus value is displayed to the right of the scale.

Figure 10: Focus Aid screen



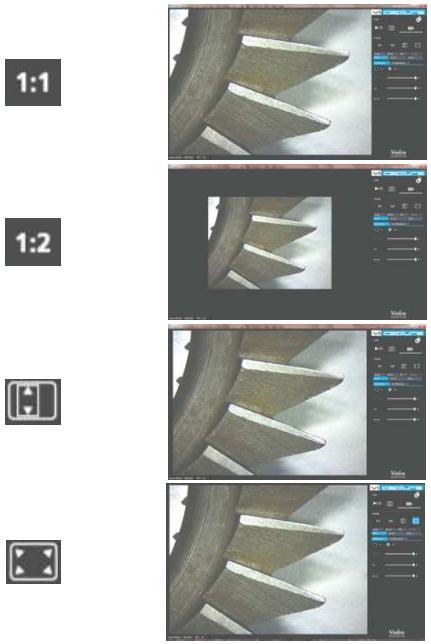
4.5 Sizing the display area

The display area has the following sizing controls:

- 1:1 Displays image pixel 1:1 with screen pixels
- 1:2 Displays the image 1:2 so one screen pixel represents two camera pixels
- Scales the image to fit the full height of the display area
- Displays the ViCapture window full screen (no status bar) and can be used in conjunction with any of the above

Examples of these sizes can be seen below:

Figure 11: Display sizing examples



▶ Click the appropriate button to change the display area accordingly.

To allow on screen zooming, the image can be moved within the display frame. If the image is moved outside the visible area, click to resize the image which will also bring the image back into the visible frame.

5. Advanced features

5.1 Advanced image control

These features can only be accessed in the Supervisor mode (see *page 14*).

The advanced image control settings are as follows:

- Mirror (image flipping)
- Timestamp
- Colour filter
- Frame rate adjustment

5.1.1 Mirror

This facility enables the live image to be flipped left to right or top to bottom.

▶ Click on **Left/Right** or **Up/Down** as required.

5.1.2 Timestamp

This feature will show the date and time on a live image and the captured time will be displayed on the saved image.

▶ Before selecting this function, click the **Mark Up** tab and select the required font, point size and colour for the timestamp.

▶ Return to the **Advanced** tab and turn the **Timestamp** to on.

The timestamp will remain on even when the supervisor mode is switched off.

5.1.3 Colour Filter

Some of our Cameras have an option for colour filter. This feature will be expanded in future development.

5.1.4 Frame rate adjustment

The frame rate of the camera can be adjusted. Increasing the frame rate can produce a smoother movement in the image however more data is required to be transmitted. Therefore if the camera is dropping frames or freezing then lowing the frame rate will decrease the amount of data required to be handled by the computer it is connected to.

5.1.5 Defect Pixel Correction

▶ Turning on this feature will enable Defect/Hot pixel correction. Where possible the software will try to correct for the pixel defect within the image.

5.2 Mark up

The mark up feature enables rectangles, ellipses, lines, arrows and text to be added to the display area.

5.2.1 Shapes, lines and arrows

- Before adding a mark up, select the colour and line thickness of any shape, line, or arrow that is to be added.
- Click on the appropriate button and a circle, square, line or arrow (single or double ended) will be displayed in the top left corner of the image.
- Drag the mark up to the area of interest and use the adjustment squares around the perimeter of the mark up to change its size and shape.
- With the mark up selected clicking the right mouse button will display a menu with the following options:
    - Select all (markups and any overlays)
    - Unselect all (markups and any overlays)
    - Delete (the selected mark up)
    - Delete all (mark ups and any overlays but ***not*** the time stamp or crosshair)
    - Move to front (moves the selected mark up to be displayed at the front of any others)
    - Move to back (moves the selected mark up to be displayed at the back of any others)
    - Undo (cancels the previous menu action)
    - Redo (reverses the previous Undo action)
    - Set properties (reverts a mark up shape to a black outline and minimum thickness)

5.2.2 Text mark up

This feature enables text annotations to be added to the display area.

- Before adding text, select the colour font type and point size of the text to be added.
- Click on the text (**T**) button and a text box will be displayed.
- Double click inside the box and enter the required text.
- Drag the text box to the area of interest and use the adjustment squares around the perimeter of the box to change its size.

The text can be edited after moving the text box into position.

- With the text box selected (but not in text entry mode, clicking the right mouse button will display a menu with the following options:
  - Select all (markups and any overlays)
  - Unselect all (markups and any overlays)
  - Delete (the selected mark up)
  - Delete all (mark ups and any overlays)
  - Move to front (moves the selected mark up to be displayed at the front of any others)
  - Move to back (moves the selected mark up to be displayed at the back of any others)
  - Undo (cancels the previous menu action)
  - Redo (reverses the previous Undo action)
  - Set properties (reverts the text to 4 point Arial black)

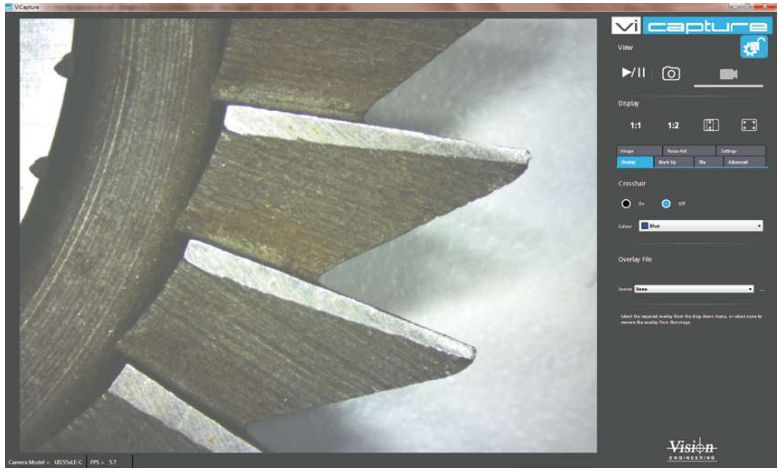
5.3 Overlay

- Click the **Overlay** tab to overlay the display area with either or both of the following:
  - Display a coloured crosshair (in supervisor mode only - see *page 14*)
  - Overlay files (see *page 22*)

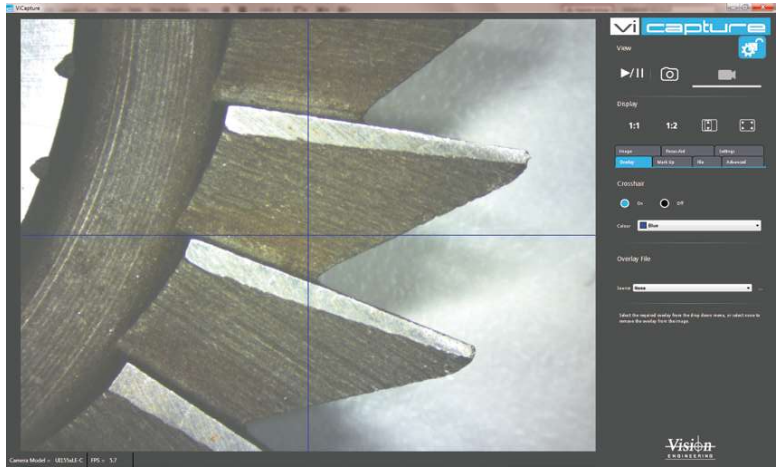
5.3.1 Crosshair

- With the supervisor mode on (see *page 14*), select the required colour from the drop down list.
- Click the **On** radio button. A crosshair will be placed in the centre of the display area (see below).

Figure 12: Crosshair example



No Crosshair



With Crosshair

Once set to On, the crosshair will remain displayed even when not in the supervisor mode. To turn the crosshair off, the supervisor mode must be on.

5.3.2 Overlay files

Overlay files can be used to highlight specific areas of the displayed image.

Overlay files must be .PNG files with a transparent background. The dimensions of the overlay file must match the camera being used.

5.3.2.1 Managing overlay files

To manage overlay files, the supervisor mode must be on (see *page 14*).

- With the **Overlay** tab selected, click on **Browse** to the right of the **Source** drop down list. The **Overlay Manager** window will be displayed.

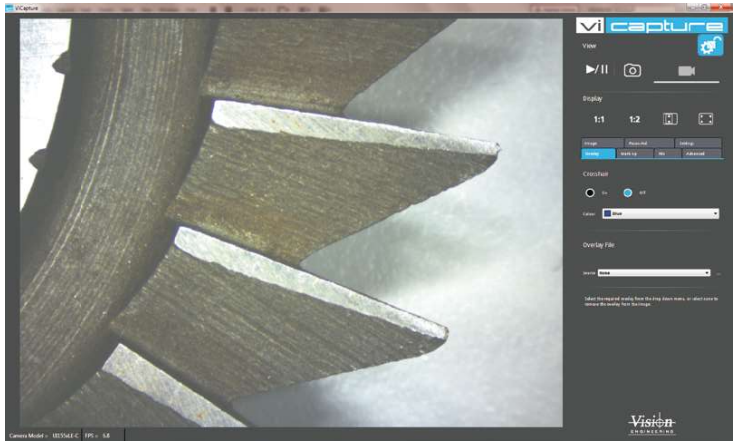
Figure 13: Overlay Manager window

- To import an overlay file, click the **Add...** button.
- Navigate to the folder containing the required file and import it. The file name will be added to the list.
- To remove an overlay file from the list, click on the file name in the list and then click **Remove**.
- When overlay management is complete, click **Close**.

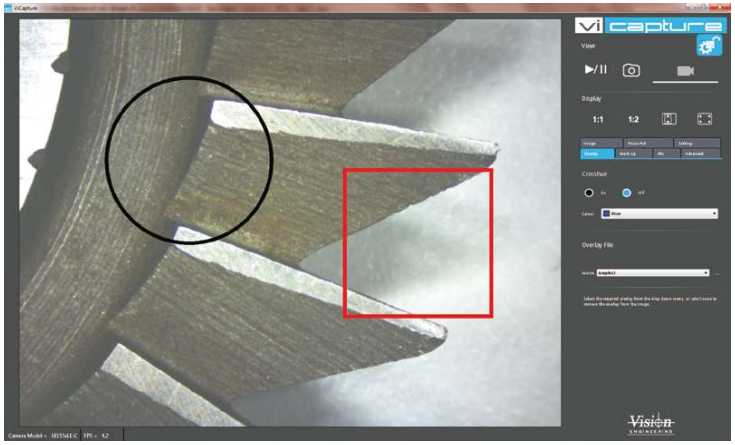
5.3.2.2 Displaying overlay files

- With the **Overlay** tab selected, click on the **Source** drop down list and select the required file.
- The overlay file will be displayed in the image area (see below).

Figure 14: Overlay file example



No Overlay



With Overlay

- To remove an overlay file from the display, click on the **Source** drop down list and select **None**.

6. Settings

The **Settings** tab enables a user to carry out the following:

- Camera selection
- Load a settings file
- Save the current settings (Supervisor mode only - see *page 14*)
- Manage the settings files (Supervisor mode only - see *page 14*)
- Language selection
- Change the Supervisor password (Supervisor mode only - see *page 14*)

6.1 Camera selection

- Click the **Scan** button to populate the camera drop down list with any cameras connected to the PC via a USB port.
- Select the required camera from the drop down list if necessary.

6.2 Load a settings file

- Select a settings file from the drop down menu and the settings will be automatically loaded to the camera that is currently active.

6.3 Save the current settings

To save the current settings the software must be in the Supervisor mode (see *page 14*)

To alter the settings values for an existing settings file, select the required settings file from the drop down list and click the **Save** button. The following indicates which current setting values will be saved per tab:

- **Image**
  Auto exposure (On/off)
  Brightness reference
  Gain
  Exposure
  Gamma
  Black level
  Auto white balance (on/off and colour temperature)
- **Focus-aid**
  Focus assist box (location)
- **Settings**
  Settings files (file details saved for recall but not saved with settings)
  Language
  Password (password saved if changed but not changed with settings)
- **Overlay**
  Crosshair (On/Off and colour)
  Overlay (file details saved for recall but not saved with settings)
- **Mark up**
  Annotation (Line colour and line thickness and location of active annotations)
  Text (font, size colour and location of active annotations)
- **File**
  File type (PNG or JPG or BMP)
- **Advanced**
  Mirror
  Time stamp (on/off, colour, font, size and location)
  Colour filter
  Auto pixel clock adjust (on / off)
  Auto pixel clock settings
  Saturation

Security status is not saved. This means if a user closes the software whilst it is in 'Supervisor mode' it will NOT be in 'supervisor mode' when it reopens

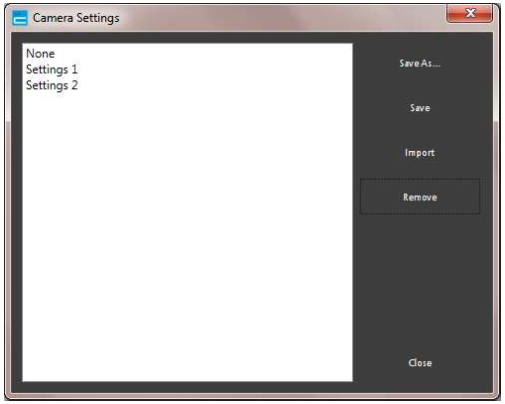
6.4 Managing the settings files

To manage the settings files the software must be in the Supervisor mode (see *page 14*).

- Click on the **Manage** button. The **Camera Settings** window will be displayed.

Only the files that are compatible with the selected camera are shown.

Figure 15: Camera settings window



6.4.1 Save As...

- Click **Save As...**. The **Save as** window will be displayed.
- Change the suggested file name as appropriate and click the **Save** button.

6.4.2 Save

- Click on a settings file from the list displayed and then click **Save**.

6.4.3 Import

- Click on the **Import** button. The **Open** window will be displayed.
- Navigate to the required folder if necessary, select the required settings file and click the **Open** button.

6.4.4 Remove

- Click on a settings file from the list displayed and then click **Remove**. The file will be removed from the list.

7. File

The **File** tab enables a user to carry out the following:

- Load a Still image
- Change the file type that can be loaded (Supervisor mode only - see *page 14*)

7.1 Load a still image

▶ Click on the **Load** button. The **Open** window will be displayed.

▶ Navigate to the required folder if necessary, select the required image file and click the **Open** button.

7.2 File type selection

To select the type of file to be loaded the software must be in the Supervisor mode (see *page 14*).

▶ Select the required file type from the drop down menu. The file types available are as follows:

- .png
- .bmp
- .jpg

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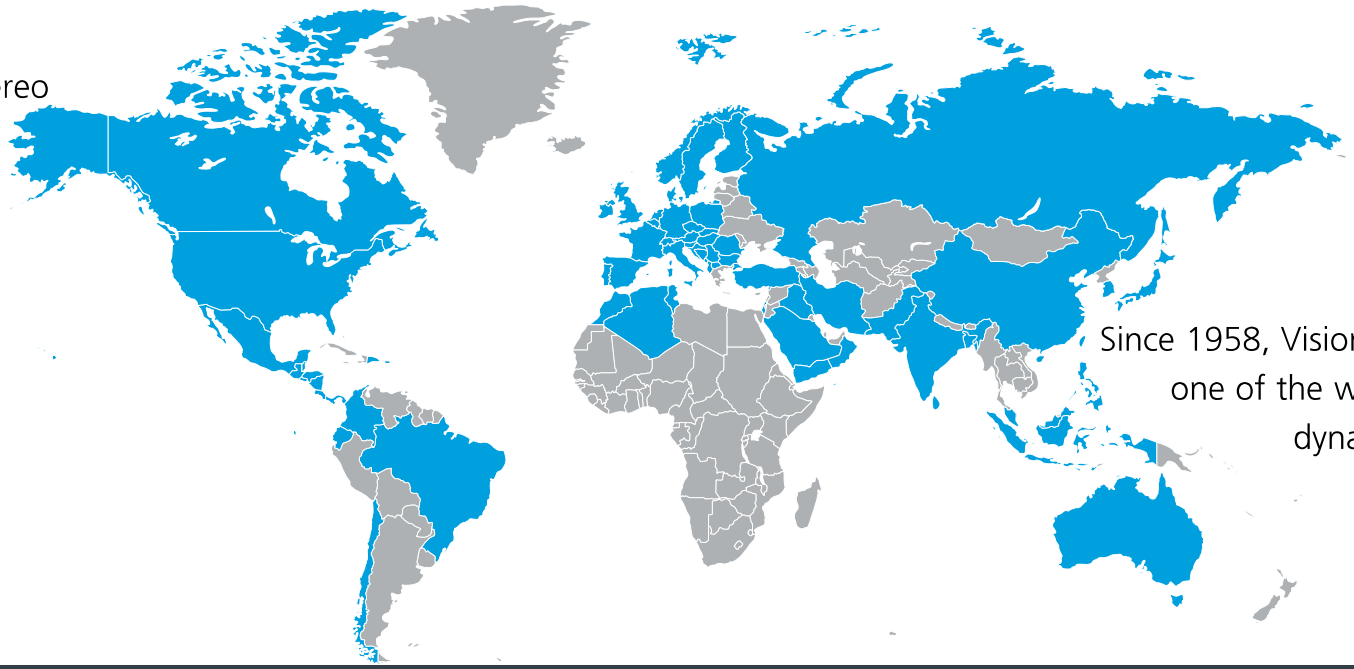

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