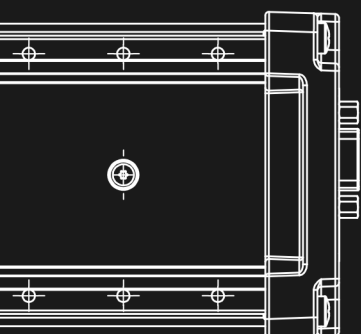
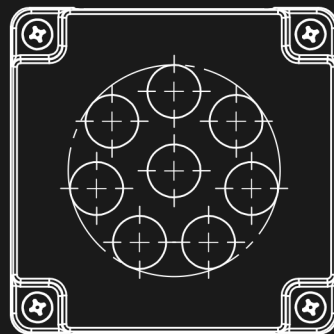
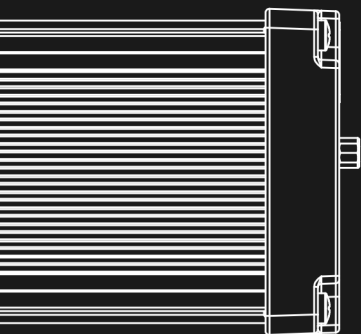
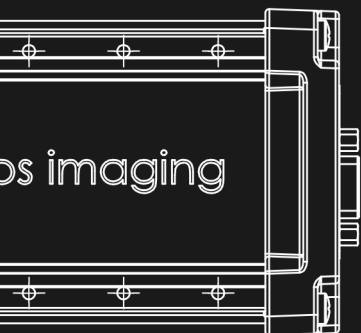


# Odos Imaging

## StarForm Swift™ Quick Start Guide

Version 0.9.0, December 19, 2016



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## 1 Contact

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Note

### **Technical Information:**

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## 2 Introduction

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This guide provides a quick start guide to working with the Star-Form Swift™ 3D camera. The following chapters provide details on how to assemble the camera, install software, and connect and configure the camera to stream and save 3D images, using the StarStream GUI program.

### 2.1 Styles and Convention

This manual uses certain typographical conventions in order to maintain an easily accessible and consistent layout. The styles contained in Table 2.1 and symbols noted below are used throughout the manual.

Table 2.1: Description of typographical styles used throughout this manual.

Style	Function	Example
Bold	important information, key words, headings,	<b>Bold</b>
Emphasis	GenICam™ features	<b>AcquisitionComponentEnable</b>
Italic	filenames	<i>helpfile.pdf</i>
Monotype	code	<code>perl -00 -pe ''</code>



Note

This symbol highlights important information to note.



Caution

Use of the **CAUTION** heading throughout this manual explains risks that are potentially harmful to either the product or personnel. These sections should always be read carefully and understood.

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### 3 Assemble StarForm Swift™ Hardware

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The StarForm Swift™ 3D camera requires 12V DC power supply and ethernet connectivity. Follow the steps below to assemble the camera hardware ready for connection to a host PC.

1. Carefully remove all the components from their packaging, and store the packaging for later use. If supplied with an accessory pack the supplied hardware will include the StarForm Swift™ 3D camera, an AC/DC power supply, a CAT 6a ethernet cable and a tripod mounting plate.
2. Connect the ethernet cable to a suitable host PC. Base requirements for the PC are 32bit Windows 7,8,10, with 4 Mb memory, and 50 Mb of storage.
3. Connect the AC/DC power supply to a suitable mains source. The power supply is supplied with a mains adapter suitable for the specific region (UK, EU, US).
4. Connect the 12 VDC jack to the StarForm Swift™ camera. After several seconds the LED indicator light will illuminate solid red during the internal firmware boot, before briefly flashing white, and then solid blue indicating that the camera is ready for connection to a host PC.

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## 4 Install Software

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Follow the steps below to install the required software components to the host PC.

1. Download both the *StarFormSwiftSdkSetup.exe* and *StarStreamSwiftSetup.exe* binaries from [www.odos-imaging.com/download](http://www.odos-imaging.com/download).

2. Run the each installer program by double clicking o the binary or executing from a command prompt. Note: you may require administrator permissions to install software, depending on your local configuration.

3. Each intstaller provides specific components:

**StarStream GUI** , provided by *StarStreamSwiftSetup.exe* . A simple program to allow connection to, and configuration of the StarForm Swift™ camera. Images can be simply streamed to the host PC and saved for further analysis.

**Swift SDK** , provided by *StarFormSwiftSdkSetup.exe* . A fully functional C++/.NET software development kit is provided together with documentation, to allow programatic control of StarForm Swift™ cameras.

4. Each installation is self-contained and will install to a new folder 'odos imaging' located on a default Windows install in 'C:/Program Files (x86)'.
5. the Swift SDK contains all the neccesary libraries and header files to compile user programs to control StarForm Swift™ cameras. The top level folder contains the compiled HTML file *odos-swift.chm* , which contains details of the SDK classes, namespaces, and files.
6. Additional detail on the GenICam™ interface to the StarForm Swift™ camera can be found in the reference manual, *star-form-swift\_genicam\_reference.pdf* , available from [www.odos-imaging.com/download](http://www.odos-imaging.com/download) .
7. The StarForm Swift™ camera requires to be provided with an IP address from a DHCP server. This can be provided

either by a DHCP server running on the user network or on the host PC.



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## 5 Run StarStream GUI

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Run the StarStream GUI program by either directly locating the binary within the file tree or from the Windows Start menu. Figure 5.1 shows an overview of the program and several control windows referenced in the sections below.

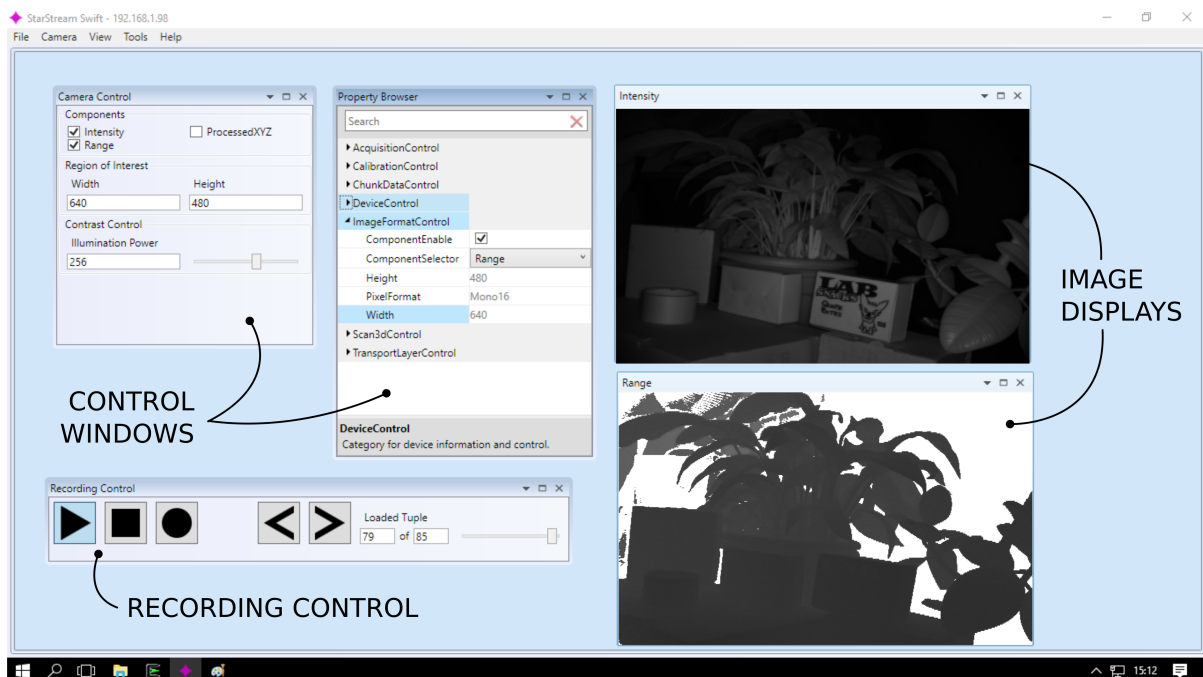


Figure 5.1: Overview of StarStream GUI program.

### 5.1 Connect and Stream

The following steps outline basic control of the StarForm Swift™ camera.

1. Connect to a StarForm Swift™ camera by selecting the main menu item **Camera** ⇒ **Connect....** This will open the connection dialogue. Each available StarForm Swift™ camera

will be listed and identified by MAC Address, IP Address and serial number. Highlight the required camera and press **OK** to complete the connection.

2. Open a window to view the streaming image by selecting the main menu item **View** ⇒ **New Intensity**. This window will display the **Intensity** output of the StarForm Swift™ camera.
3. Open an additional window to view the streaming range image from the camera, by selecting the main menu item **View** ⇒ **New Range**. The two viewing windows will be available as overlaid tabs within the main program window,
4. Start the StarForm Swift™ camera streaming by selecting the main menu item **Tools** ⇒ **Start Acquisition**. Streaming images will be visible in the two viewing windows. Alternatively, acquisition can be started by pressing the **Play** button visible on the **Recording Control** dockable window. If this window is not visible it can be opened by selecting **View** ⇒ **Recording Control** from the main menu.
5. Open the **Camera Control** dockable window, if it is not already open, by selecting the main menu item **View** ⇒ **Camera Control**. This window provides control of basic camera parameters.
6. Check and uncheck the **Components** checkboxes for **Intensity** and **Range** components. Notice that when the checkboxes are not checked the corresponding image no longer streams to the display windows.
7. Each display window provide controls over the rendering of the streamed images. Hover the mouse over the top of the display window to access a drop down menu bar with these controls.

**False Colour.** Images can be displayed either in greyscale or as a false colour map. If the false colour map is selected a dialog is opened which allows the colour scaling to be adjusted by the user. This feature can allow for fine visualisation of range data.

**Zoom.** A zoom tool is provided to closely inspect the image data. The zoom level can be set by the zoom slider, and the when activated, the tool will provide a zoom image of the image for the area currently under the mouse pointer.

8. Ensure that the **Range** viewing window is visible, and adjust

the **Illumination Power** slider to vary the power of the optical signal. Increasing the optical signal can provide more precise range measurement, but consumes more power and dissipates more heat into the StarForm Swift™ camera.

9. Stop the StarForm Swift™ camera streaming data by selecting from the main menu **Tools** ⇒ **Stop Acquisition**. Alternatively the camera can be stopped by pressing the **Stop** button on the **Recording Control** dockable window.

## 5.2 Record Images

The following steps outline how images and data can be saved from the StarForm Swift™ camera to a host PC.

1. Enable the save function within the StarStream GUI program by selecting **File** ⇒ **Save Images...** dialogue. This dialogue allows the specification of a save location on the host PC by browsing and selecting a folder with the **Save Location** browser.
2. Use the various checkboxes within the **Formats** box to select which types of output format are required.

**Raw format.** This format provides a binary export of the raw image data with two bytes per pixel for both **Range** and **Intensity** components.

**PNG format.** This format outputs images as .png files.

**JPEG format.** This format outputs images as .jpeg files.

**PCD format.** This format outputs calibrated 3D in 'point cloud' data format, .pcd<sup>1</sup>.

3. Start the StarForm Swift™ camera streaming by pressing **Play** on the **Recording Control** dockable window or using the **Tools** ⇒ **Start Acquisition** within the main menu. The camera will start streaming images to the host PC. Recording can be initiated by pressing the **Record** button on the **Recording Control** window. The **Record** button will be highlighted while images are saved to the host PC. Note: if the camera is left to record continuously, many images will be stored to the host PC. This should always be monitored to avoid over filling disk space.

<sup>1</sup> For more details see [http://pointclouds.org/documentation/tutorials/pcd\\_file\\_format.php](http://pointclouds.org/documentation/tutorials/pcd_file_format.php)

### 5.3 Access GenICam™ Features

All properties of the StarForm Swift™ camera can be accessed through the GenICam™ interface. This interface is available within StarStream GUI with the following steps.

1. Open the **Property Browser** by selecting **View** ⇒ **Property Browser** from the main menu.
2. The **Property Browser** dockable window provides a list of all GenICam™ features available for the StarForm Swift™ camera as a list of feature-value pairs. These parameters may be directly read out, or written to within the **Property Browser** window<sup>2</sup>.

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<sup>2</sup> Note some GenICam™ features may be read-only, or may only be writable when the camera is not streaming images. Please consult *star-form-swift-genicam-reference.pdf* for more details.

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## 6 Document History

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Date	Version	Changelog
19.12.2016	0.9.0	First Release

Manual Build: eb7dbec17aba1783144c3a075c6824a5750865db