

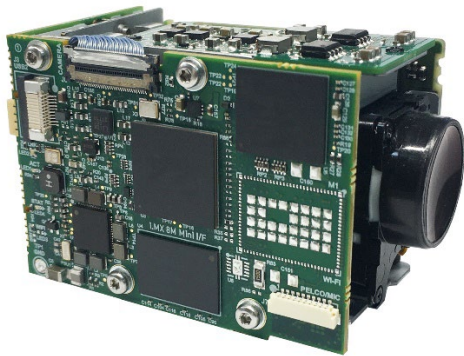
# QUICK START GUIDE

## HARRIER IP CAMERA INTERFACE BOARD

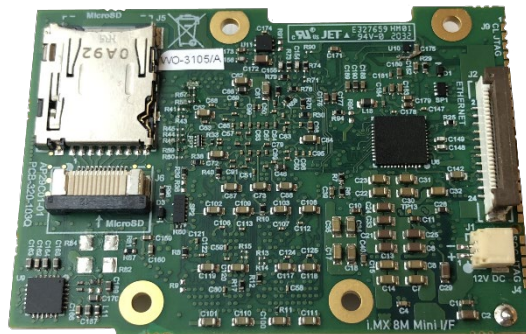
### Introduction

This guide is designed to get you quickly up and running with the **Harrier IP Camera Interface Board** (AS-CIB-IP-001-A or AS-CIB-IP-002-A) together with the Harrier Ethernet Connection Board (AS-CIB-IP-IFETH-001-A or AS-CIB-IP-IFPOE-001-A). The Harrier IP camera interface solution can be purchased as a pre-assembled camera module with the Harrier 10x/36x/40x AF-Zoom Camera, the Sony FCB-EV series cameras and the Tamron MP3010M-EV camera (AS-CIB-IP-001-3010-A).

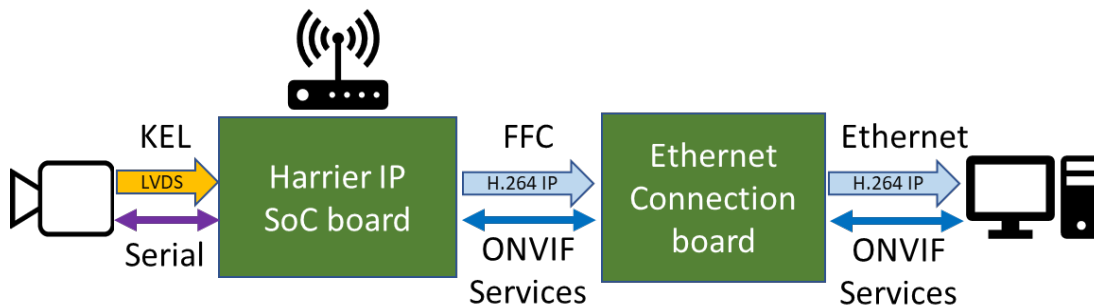
This document should be read in conjunction with the datasheets of the Harrier IP Camera Interface Board and the Harrier Ethernet Connection Board.



**Figure 1. Harrier IP Camera Interface Board and Ethernet Connection Board mounted on a Tamron MP1010M camera**



**Figure 2. Reverse side of Harrier IP Camera Interface Board**



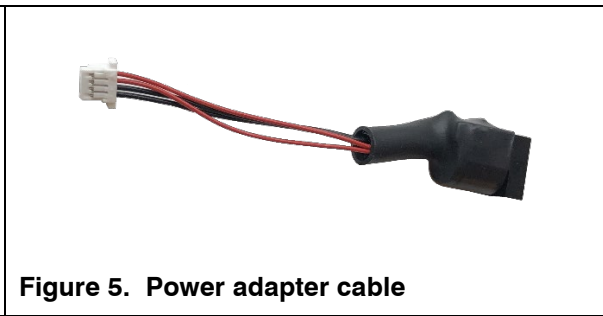
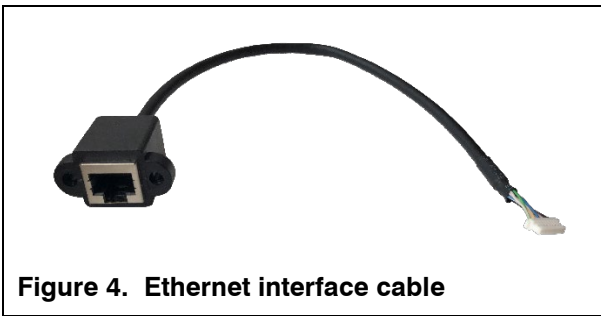
**Figure 3. Harrier IP camera system block diagram (wireless/PoE features are optional).**

### Evaluation Kit Contents

The Evaluation Kit for the Harrier IP (AS-CIB-IP-001-EVAL-A) contains all the parts needed to evaluate the Harrier IP Camera Interface Board. Note that the evaluation kit does not include a Harrier IP Camera Interface Board, FFC cable or camera, these need to be ordered separately.

Please check that you have all the parts listed below:

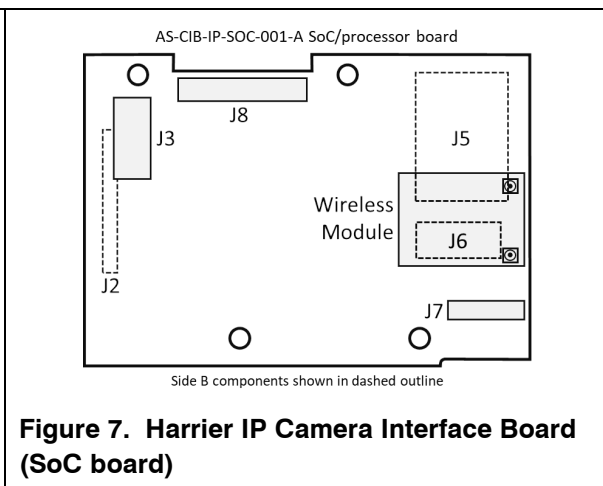
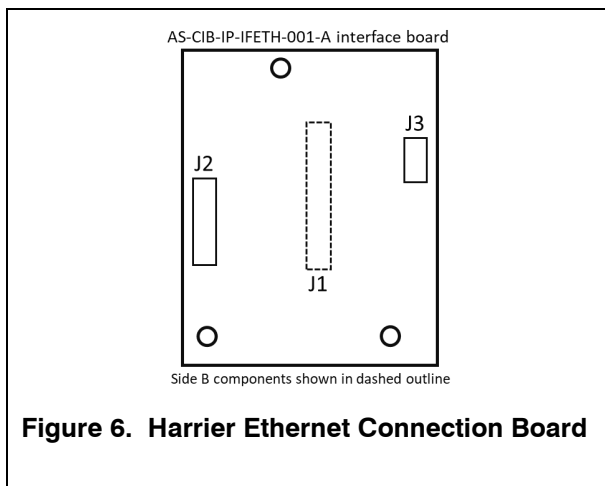
- Multi-region 12V power supply (please fit the adapter suitable for your region)
- Power adapter cable (barrel to 4-way JST connector, figure 5)
- Ethernet interface cable (JST connector to RJ45 socket, figure 4)



### Setting up the Boards

If you have purchased a pre-assembled camera you can skip this step.

1. Connect the Harrier IP Camera Interface Board (SoC board) (J2) to the Ethernet Connection Board (J1) using a 24-way 0.5mm pitch double ended (same side contacts) FFC cable. Ensure that the cable is connected the right way round. For the SoC board (J2) the metal contacts should face towards the microSD socket. For the connection board (J1), the metal contacts should face the PCB.
2. Connect the SoC board (J8) to the camera LVDS output using a KEL 30-way microcoax cable.
3. To avoid damage the boards must be securely mounted so that the cables are not strained.



### Quick Start

1. Download the [ONVIF Device Manager](https://sourceforge.net/projects/onvifdm/) from <https://sourceforge.net/projects/onvifdm/>
2. Connect the correct power socket adapter to the multi-region power supply.
3. Connect the JST connector on the power adapter cable to J3 on the Ethernet Connection Board. Connect the barrel connector plug on the multi-region power supply to the power adapter cable barrel socket.
4. Connect the JST connector on the Ethernet interface cable (JST connector to RJ45 socket) to J2 on the Harrier Ethernet Connection Board. Using a CAT5e/6 cable connect to a live network (with DHCP server) by plugging the network cable into the Ethernet interface cable's RJ45 socket.
5. Connect the multi-region power supply to mains power. The board and camera will now power-up. A blinking LED indicates network activity.
6. On a PC connected to the same network, use the ONVIF Device Manager application to locate the camera and find out its IP address (open application, click on refresh). Make a note of the IP address.
7. View the streaming video from the Harrier IP Camera Interface Board using the ONVIF Device Manager or a suitable media player application (e.g. VLC player or GStreamer). Use `rtsp://<IP address>:8554/quality_h264` to connect to the camera.

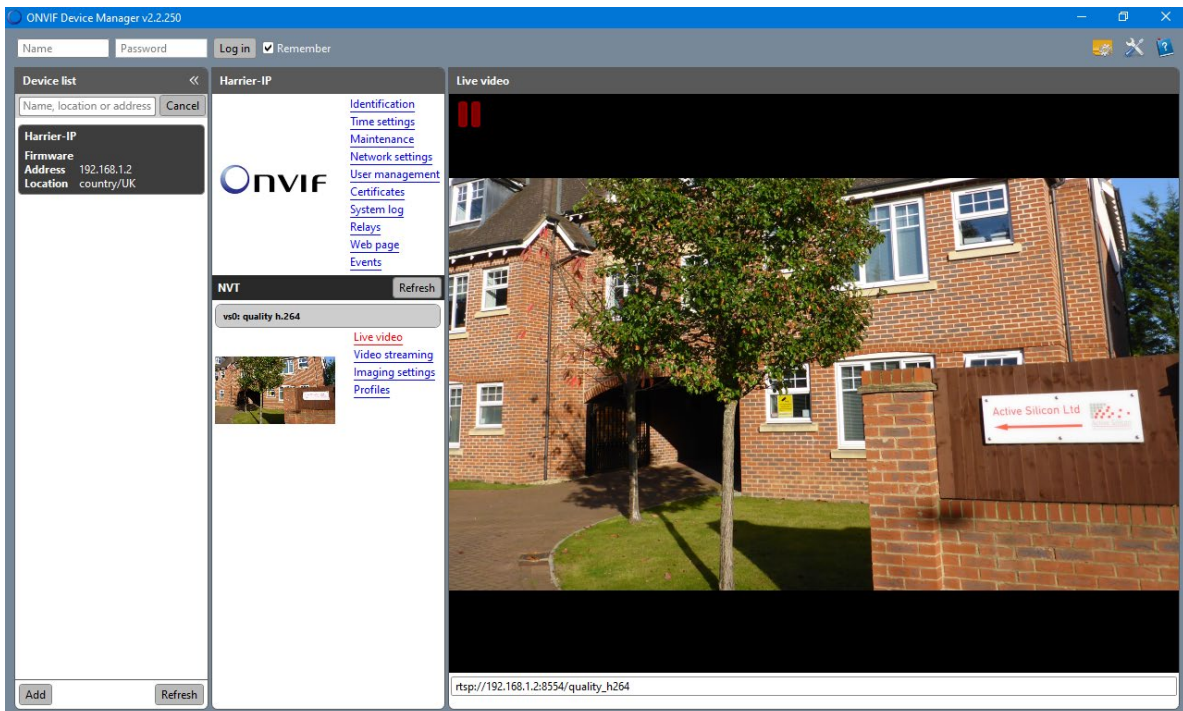


Figure 8. ONVIF device manager connected to Harrier IP camera

## Discovering the Camera's IP Address

Finding out the camera's IP address requires the [ONVIF Device Manager](#).

By default, the camera is automatically assigned an IP address using DHCP.

To discover the IP address:

- Ensure the camera has powered-up correctly and is connected to the network.
- Ensure your Ethernet router runs a DHCP server.
- Launch the [ONVIF Device Manager](#).
- Click the Refresh button. The camera will appear on the Device List.

## Assigning a Fixed IP Address

A fixed IP address can be set on the network web page served by the Harrier IP Camera Interface Board.

- In your web browser, enter: **http://<IP Address>** to access the Harrier IP website.
- Click the Network tab.
- Edit the network settings and submit the form.

Note: the IP address will change immediately, and you will need to use the new address to access streaming video and the Harrier IP webpages.

## Viewing Video Streams

To view streaming video from the Harrier IP Camera Interface Board you will need a media player such as VLC player or GStreamer.

### Using VLC

- Install and open [VLC player](#)
- From the Media menu, select Open Network Stream
- In the Open Media dialog, enter **rtsp://<IP address>:8554/quality\_h264**
- Click the Play button

### Using GStreamer

- Install GStreamer and open a command prompt or shell.
- Run the following command:

```
gst-launch-1.0 rtspsrc location=rtsp://<IP Address>:8554/quality_h264 !  
decodebin ! autovideoconvert ! autovideosink sync=false
```

Note: to make GStreamer work on Windows, you may need to update the 'PATH' environment variable and set the GStreamer environment variable; for example:

```
set GSTREAMER_1_0_ROOT_X86_64=c:\gstreamer\1.0\x86_64\  
set path=%path%;% GSTREAMER_1_0_ROOT_X86_64%\bin;
```

## Controlling the Camera

The camera can be controlled using the ONVIF media services or the Harrier IP web pages:

- In your web browser, enter: **http://<IP Address>** to access the website.
- From the menu on the left-hand side, select the Maintenance page.
- Select the correct camera model (T1x1x).
- From the menu on the left-hand side, select the Camera Control page.

The text entry box (see figure 9.) allows you send VISCA commands/inquiries to the camera so that you can control all of its features (zoom, auto exposure, white balance, etc.). For convenience, a small number of features have been mapped to buttons on the web page.

Note: the camera video mode setting should not be changed using a VISCA command; the Maintenance web page should be used for this function.

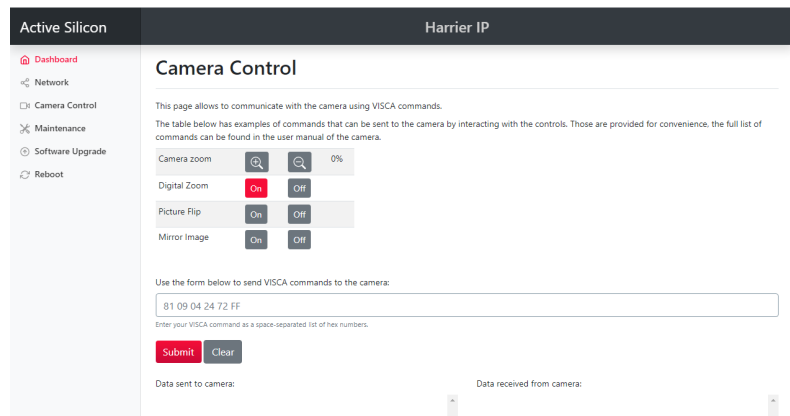


Figure 9. Harrier IP Camera Control web page

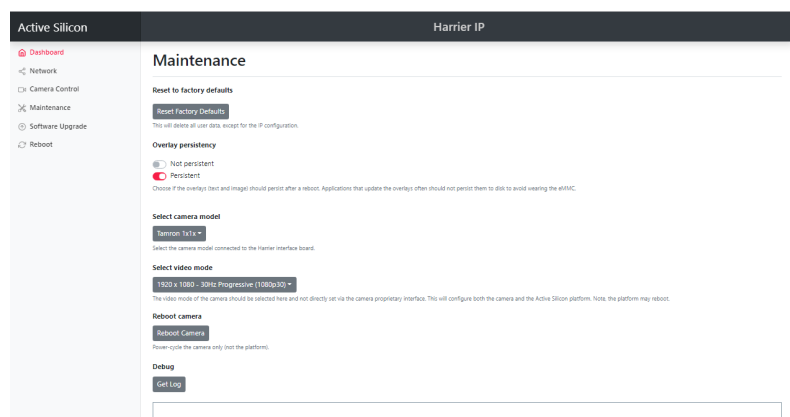


Figure 10. Harrier IP Maintenance web page

## Downloads

ONVIF Device Manager: <https://sourceforge.net/projects/onvifdm/>

VLC player: <https://www.videolan.org/vlc/index.en-GB.html>

GStreamer: <https://gstreamer.freedesktop.org/download/>

## Getting Started with the ONVIF API

The Harrier IP implements the ONVIF Profile S standard ([www.onvif.org](http://www.onvif.org)). The main services and their functions are listed below.

- Media service: allows control of the H.264 encoder settings and the on-screen display (OSD) features such as text and graphical overlays.
- Device IO service: provides direct communication to the camera serial interface. This enables the application to communicate with the camera using the VISCA protocol, thus providing full control of the camera.
- Imaging service: enables the application to control some of the camera settings (e.g. brightness, etc.). Only a subset of the camera settings can be controlled this way, but this service enables ONVIF-compliant third-party software to control some of the camera settings.
- Device Management service: provides control of the Harrier IP platform (e.g. time and date, etc.).

Useful links:

[http://www.onvif.org/wp-content/uploads/2016/12/ONVIF\\_WG-APG-Application\\_Programmers\\_Guide-1.pdf](http://www.onvif.org/wp-content/uploads/2016/12/ONVIF_WG-APG-Application_Programmers_Guide-1.pdf)

<https://www.youtube.com/watch?v=mk6vAyIZZ0A&list=PLc2UaWzFQrPN7XNq2mAkVdsMkRCI0BMML&index=3>

For examples of how to implement the text/graphical overlays and VISCA camera control please see the Harrier IP Example Software.

## Technical Support

In case of any issues, please contact Active Silicon Technical Support by email on [techsupport@activesilicon.com](mailto:techsupport@activesilicon.com).

## Ordering Information

| <b>PART NUMBER</b>           | <b>DESCRIPTION</b>                                                                                                                          |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AS-CIB-IP-IFPOE-001-A</b> | Harrier Ethernet PoE Connection Board.                                                                                                      |
| <b>AS-CIB-IP-IFETH-001-A</b> | Harrier Ethernet Connection Board (non PoE).                                                                                                |
| <b>AS-CIB-IP-SOC-001-A</b>   | Harrier IP Camera Interface Board.                                                                                                          |
| <b>AS-CIB-IP-SOC-002-A</b>   | Harrier IP Camera Interface Board with WiFi module.                                                                                         |
| <b>AS-CIB-IP-001-A</b>       | <b>AS-CIB-IP-SOC-001-A, AS-CIB-IP-IFETH-001-A</b> and FFC cable.                                                                            |
| <b>AS-CIB-IP-002-A</b>       | <b>AS-CIB-IP-SOC-002-A, AS-CIB-IP-IFETH-001-A</b> and FFC cable.                                                                            |
| <b>AS-CIB-IP-001-3010-A</b>  | <b>AS-CIB-IP-SOC-001-A</b> and <b>AS-CIB-IP-IFETH-001-A</b> supplied mounted on a Tamron MP3010M-EV camera (with connecting cables fitted). |
| <b>AS-CIB-IP-002-3010-A</b>  | <b>AS-CIB-IP-SOC-002-A</b> and <b>AS-CIB-IP-IFETH-001-A</b> supplied mounted on a Tamron MP3010M-EV camera (with connecting cables fitted). |
| <b>AS-CIB-IP-003-3010-A</b>  | <b>AS-CIB-IP-SOC-001-A</b> and <b>AS-CIB-IP-IFPOE-001-A</b> supplied mounted on a Tamron MP3010M-EV camera (with connecting cables fitted). |
| <b>AS-CIB-IP-EVAL-A</b>      | Evaluation kit for Harrier IP (does not include boards or camera).                                                                          |

More camera options and custom builds are available, please contact Active Silicon for more information.

### Headquarters:

Active Silicon Ltd  
Pinewood Mews, Bond Close, Iver,  
Bucks, SL0 0NA, UK.

Tel: +44 (0)1753 650600  
Fax: +44 (0)1753 651661  
Email: [info@activesilicon.com](mailto:info@activesilicon.com)  
Website: [www.activesilicon.com](http://www.activesilicon.com)

### North America:

Active Silicon, Inc.  
479 Jumpers Hole Road, Suite 301,  
Severna Park, MD 21146, USA.

Tel: +1 410-696-7642  
Fax: +1 410-696-7643  
Email: [info@activesilicon.com](mailto:info@activesilicon.com)  
Website: [www.activesilicon.com](http://www.activesilicon.com)