QUICK START GUIDE
HARRIER AF-ZOOM SDI CAMERAS

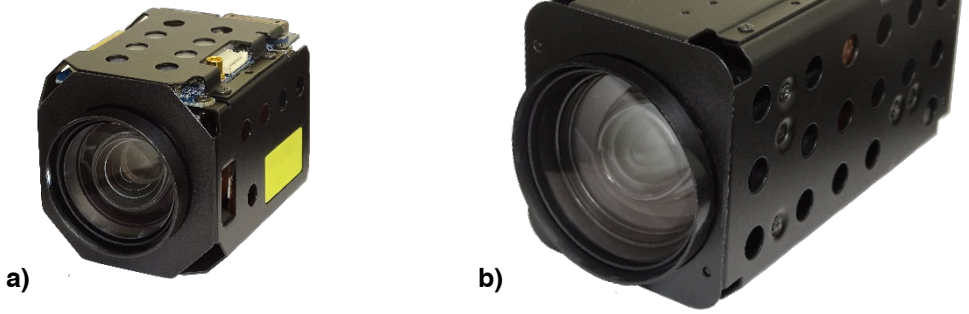
Introduction

This guide is designed to get you quickly up and running with the Evaluation Kit for Harrier SDI Cameras (AS-CAM-SDI-EVAL-A) and the **Harrier 10x AF-Zoom SDI Camera** (AS-CAM-10SHD-A) or **Harrier 36x AF-Zoom SDI Camera** (AS-CAM-36SGHD-A).

This document should be read in conjunction with the technical reference manual of the respective camera and other documents available on Active Silicon's website (see Harrier AF-Zoom SDI camera - Downloads section):

https://www.activesilicon.com/products/harrier-10x-af-zoom-sdi-camera/

https://www.activesilicon.com/products/harrier-36x-af-zoom-sdi-camera-with-global-shutter/



a) b)

Figure 1. Harrier AF-Zoom SDI cameras:
a) Harrier 10x AF-Zoom SDI Camera,
b) Harrier 36x AF-Zoom SDI Camera with global shutter

Evaluation Kit Contents

The Evaluation Kit (AS-CAM-SDI-EVAL-A) contains all the parts needed to evaluate the Harrier AF-Zoom SDI cameras (AS-CAM-10SHD-A / AS-CAM-36SGHD-A). Note that the evaluation kit does not include a camera; this needs to be ordered separately.

Please check that you have all the parts listed below:

- Harrier Evaluation Board (Figure 2)
- 9-way FFC breakout board (with 10-way wire cable) and 9-way FFC cable (Figure 3)
- MMCX-BNC adapter cable (Figure 4)
- USB Type A to mini-USB Type B cable
- Multi-region 12V power supply (please fit the adapter suitable for your region)

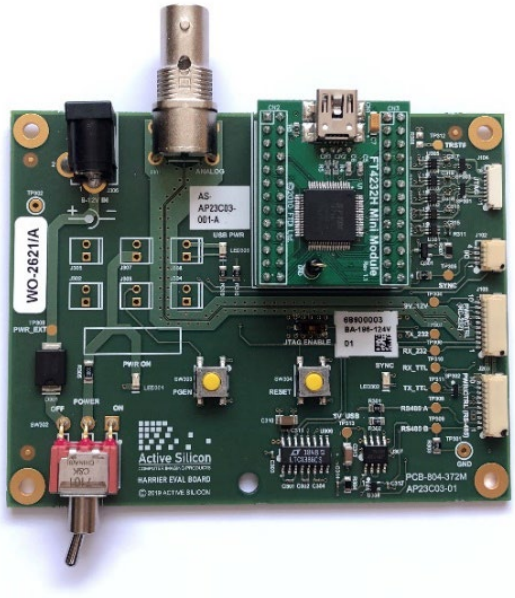


Figure 2. Harrier Evaluation Board

Figure 3. 9-way FFC breakout board (example only, actual part may be different)

Figure 4. MMCX-BNC adapter cable (example only, actual part may be different)

Harrier Evaluation Board Overview

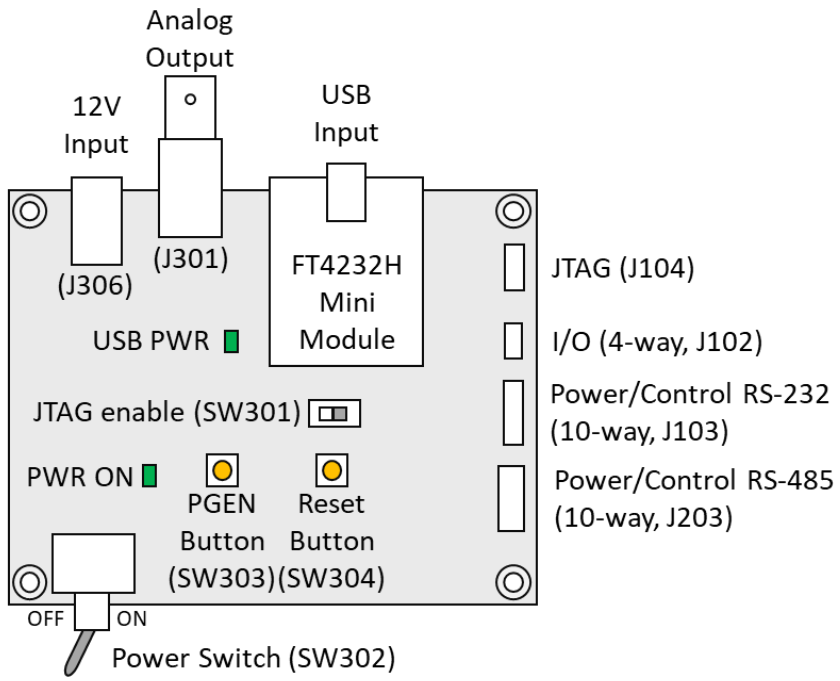


Figure 5. Harrier Evaluation Board diagram

The Harrier Evaluation Board connects to the 10-way wire cable from the FFC breakout board. The breakout board connects to the camera using the 9-way FFC cable. The evaluation board is powered by the 12V power supply via a barrel connector (J306). This supply also powers the camera via the Power Switch (SW302). When the Power Switch (and camera power supply) is switched ON the PWR ON LED will illuminate and the camera will be powered.

When the Harrier Evaluation Board is connected to a PC using the mini-USB cable, the Windows operating system will see three virtual COM ports; these ports are automatically assigned (incrementing) numbers by Windows. To identify the COM port numbers which Windows has assigned to the board, open Device Manager and look at the COM & LPT ports. The three port numbers can be identified by comparing reported port numbers with the board connected and the board disconnected.

- The lowest port number added is the RS-232 interface.
- The second added port number is the RS-485 interface.
- The highest port number added is the TTL interface.

The Harrier AF-Zoom SDI cameras only use the TTL interface.

For more information please see the Harrier Evaluation Board datasheet on the Active Silicon website (see Accessories & Cables -> Evaluation Kit for Harrier 3G-SDI - Downloads section).

Setting up the System

To get the Harrier AF-Zoom SDI camera running, follow the instructions below (also see figure 8):

1. Connect the 9-way 1.0mm pitch FFC connector on the camera (J202 / J205 shown in Figure 6 and 7) to the FFC breakout board using the 9-way 1.0mm pitch FFC cable.

Figure 6. AS-CAM-36SGHD-A showing connector J202.

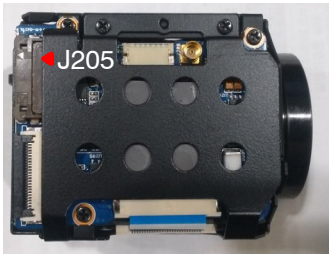


Figure 7. AS-CAM-10SHD-A showing connector J205.

2. Connect the 10-way wire cable from the FFC breakout board to the Harrier Evaluation Board I/O connector (J103). See figure 8.
3. For capturing **analog camera output** connect the J301 (Analog) BNC socket on the Harrier Evaluation Board to an analog monitor/display using a suitable coaxial cable.
4. For **EX-SDI/HD-SDI camera output**, connect the MMCX-BNC adaptor cable to the MMCX socket on the top of the camera. Using a 75 Ohm 3G-SDI/HD-SDI digital video quality BNC cable, connect the BNC end of the adapter to an EX-SDI/HD-SDI capable monitor/display.
5. For **serial communications** with the camera, use the mini USB–USB Type-A cable to connect the mini USB socket (CN1) on the Harrier Evaluation Board to a PC. The USB PWR LED should light up indicating a live connection to the PC. Three serial interfaces will appear as COM ports on the PC and be accessible to PC software, one of these will be the serial connection to the camera and can be used with the HarrierControl command line software, or other serial control applications, to communicate with the camera. The HarrierControl application can be downloaded at www.activesilicon.com from the Software page.
6. Set the Harrier Evaluation Board power switch (SW302) to OFF (left viewed from above).
7. Connect the power supply barrel connector to the Harrier Evaluation Board power input connector (J306).
8. Plug in the power supply and switch ON the Harrier Evaluation Board power switch (SW302). The PWR ON should light up.
9. The camera will make audible mechanical noises as it goes through its power up sequence and after a short time the video outputs will start working.
   Note: the camera will power up in the last video mode used, some monitors cannot display all the modes supported by the camera (notably 1080p30). If you have no visible SDI output use the HarrierControl application to check/change the EX-SDI/HD-SDI video output mode set on the camera to ensure that the camera output can be displayed on the SDI monitor.

10. If an analog monitor is connected to the Harrier Evaluation Board, and the camera analog output is enabled you will see the camera output on the analog monitor.
11. If the EX-SDI/HD-SDI output is connected you will see the camera output on the EX-SDI/HD-SDI monitor/display.

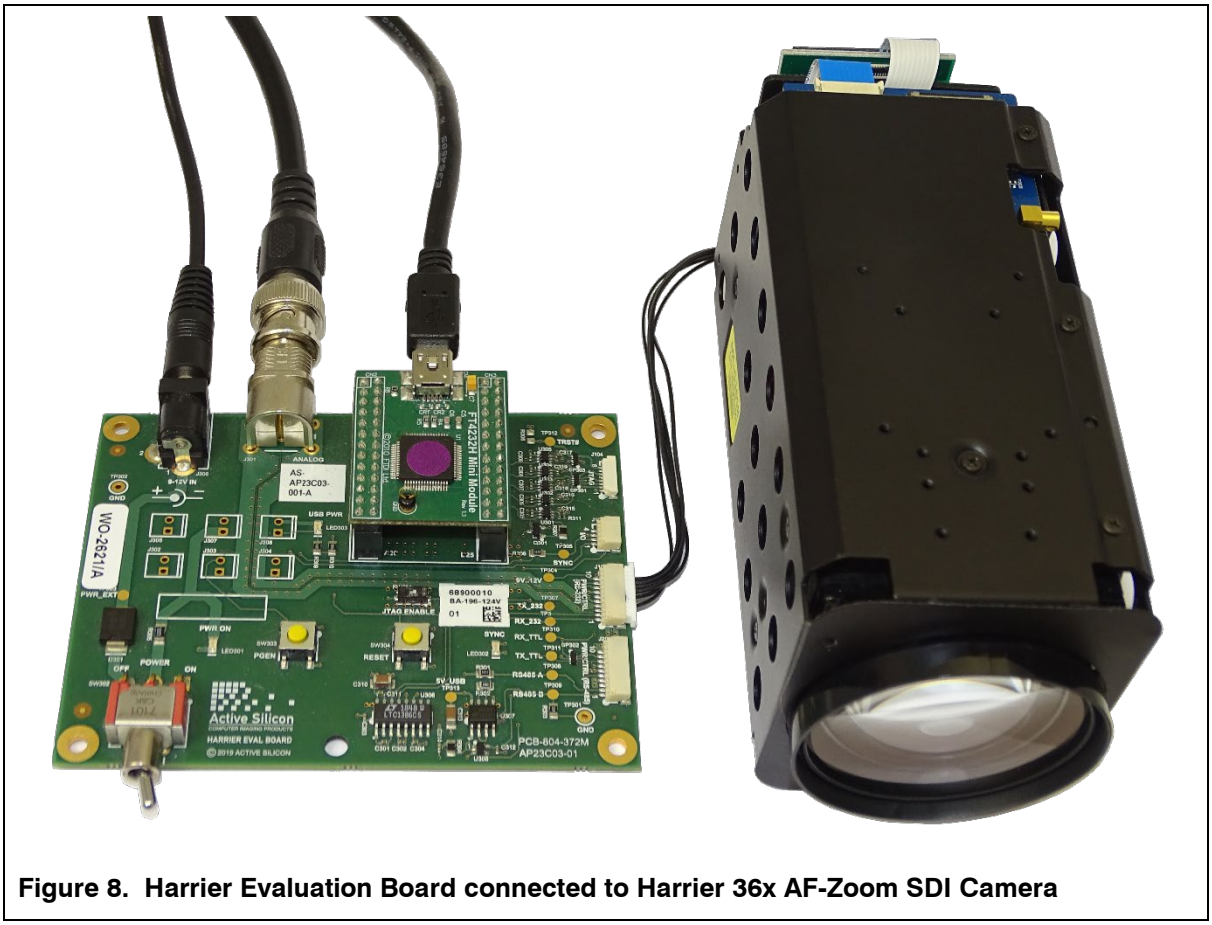


Figure 8. Harrier Evaluation Board connected to Harrier 36x AF-Zoom SDI Camera

Using the HarrierControl Application

Go to the Active Silicon website and find the Software page, or the camera product page for your model of camera (downloads tab) and download the HarrierControl application.

Unzip the HarrierControl folder and move it to a suitable folder on your PC.

The HarrierControl application is only supported on Windows 10/11. You may need to install the latest drivers from FTDI. These are available here:

https://www.ftdichip.com/Drivers/D2XX.htm

The HarrierControl application is a Windows command line program that relies on several DLL files also included in the HarrierControl folder. The best way to run the application is in a Windows Command Prompt shell; this can be found under Windows Start button in ***Start->Windows System->Command Prompt***, or you can search the applications/start for CMD. Run the Command Prompt application and change drive/directory to the HarrierControl folder.

Connect the Harrier AF-Zoom SDI camera to the Harrier Evaluation Board, ensure that the USB cable is connected to the PC as shown in figure 8. Power-up the camera.

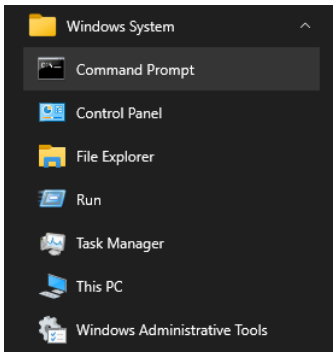


Figure 9. Windows 10 Command prompt application

Figure 10. Typical HarrierControl application start-up text

Run the HarrierControl application executable.

You should see something similar to the display shown in figure 10.

Once the application is running you can follow the screen prompts to change settings or query the camera settings.

The HarrierControl application can be used with command line arguments as follows:

HarrierControl [P1] [P2] [P3] [P4]

Argument **[P1]**:

This specifies the type of Interface/Serial communication to be used.

/? displays help text.

/h displays help text.

/H displays help text.

RS232 RS-232 via Harrier Evaluation Board selected. Harrier SDI cameras do not support RS-232.

RS485 RS-485 via Harrier Evaluation Board selected. Harrier SDI cameras do not support RS-485.

TTL TTL via Harrier Evaluation Board selected. Harrier SDI cameras support TTL.

USB3 USB interface selected. Harrier SDI cameras do not support USB control.

COMx COM port x selected, (x=2-255).

Argument **[P2]**:

This specifies the Baud Rate of the serial port. Valid values are **9600**, **19200**, **38400**, **57600** and **115200**.

With USB3 communications [P2] is not required and is omitted from the command line.

Argument **[P3]**:

This is the VISCA command that is to be sent to the camera.

The application requires VISCA commands to be entered in a comma delimited format; the commas are removed before sending the commands.

Each individual number is treated as a hexadecimal number.

To work in PowerShell the comma separated VISCA command should be enclosed in double quotation marks: " *command* "

For information on suitable VISCA commands please refer to the documentation for your camera.

Argument **[P4]**:

This is an optional parameter. If you set [P4] to **/P** HarrierControl will attempt to parse the command and response and print a description of the command/response on the screen.

Note: not all commands are supported and there may be no description for some commands.

Examples:

```
C:> HarrierControl TTL 9600 81,09,00,02,ff /P
Tx: [ 81 09 00 02 ff ]
    Get Camera Details
Rx: [ 90 50 00 20 04 66 01 00 03 ff ]
Active Silicon AS-CAM-10SGHD-A
Camera Firmware Version 0x0104
---
C:> HarrierControl TTL 9600 "81,09,04,24,9A,FF"
Tx: [ 81 09 04 24 9a ff ]
Rx: [ 90 50 00 00 ff ]
---
C:> HarrierControl TTL 9600 81,09,00,02,ff /P
Tx: [ 81 09 00 02 ff ]
    Get Camera Details
Rx: [ 90 50 00 20 04 66 01 00 03 ff ]
Active Silicon AS-CAM-36SGHD-A
Camera Firmware Version 0x0102
```

Harrier 36x AF-Zoom SDI Camera – setting the SDI video mode

The Harrier 36x AF-Zoom SDI Camera (AS-CAM-36SGHD-A) may be shipped with EX-SDI output mode set ON by default.

To change the camera output to HD-SDI mode use the HarrierControl application (or other serial control software) to send the VISCA command that changes the SDI output format.

Command CAM_RegisterValue: **8x 01 04 24 mm 0p 0q FF mm**

mm register number: **99h**

pq register value: **01=HD-SDI output, 02= EX-SDI output**

Examples:

Set HD-SDI mode:

```
C:> HarrierControl TTL 9600 81,01,04,24,99,00,01,FF
Tx: [ 81 01 04 24 99 00 01 ff ]
Rx: [ 90 41 ff 90 51 ff ]
```

Inquire SDI mode:

```
C:\> HarrierControl TTL 9600 81,09,04,24,99,FF
Tx: [ 81 09 04 24 99 ff ]
Rx: [ 90 50 00 01 ff ]
```

Technical Support

In case of any issues, please contact Active Silicon Technical Support on the telephone numbers below or by email to techsupport@activesilicon.com.

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