

# ACTIVE FCB HD-SDI INTERFACE MODULE



- HD-SDI digital interface for the Sony FCB-H11
- 1080i/720p high definition video
- Analog video pass through
- RS-232 serial communications

## FEATURES

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- Next generation solution for interfacing to Sony FCB-H11 series block cameras.
- Includes interface module, cables, and bracket.
- Uses the camera's digital output port to give optimum image quality.
- Supports all available HD modes – 1080i and 720p at 50Hz or 59.94Hz.
- Compliant with SMPTE 274M and SMPTE 296M.
- RS-232 communications port for camera control.
- HD and SD analog video also accessible.
- Compatible with Active Silicon's frame grabbers.
- RoHS compliant.



## OVERVIEW

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The **Active-FCB-HDSDI** is a complete interface solution to acquire digital images directly in real-time from the Sony FCB-H11 and FCB-H10 series of block cameras.

This interface module provides a cost effective solution to take full advantage of the high definition digital video provided by the Sony FCB-H11 and FCB-H10 block cameras. Unlike alternative solutions which re-digitize the analog output from the camera, this solution directly connects to the camera's digital output to provide superior image quality. All camera HD modes are supported i.e. 1080i/50Hz, 1080i/59.94Hz, 720p/50Hz and 720p/59.94Hz.

The kit consists of the small interface module, a mounting bracket and cables.

Active Silicon can also supply a range of HD-SDI video capture cards for interfacing to this module if required. As well as zero CPU acquisition, these cards provide serial communications and access to the camera's reset line for control of standby mode. These cards are available in a range of formats – not only standard PC formats (PCI & PCI-Express) but also in compact form factors such as PCI/104-Express for embedded applications.

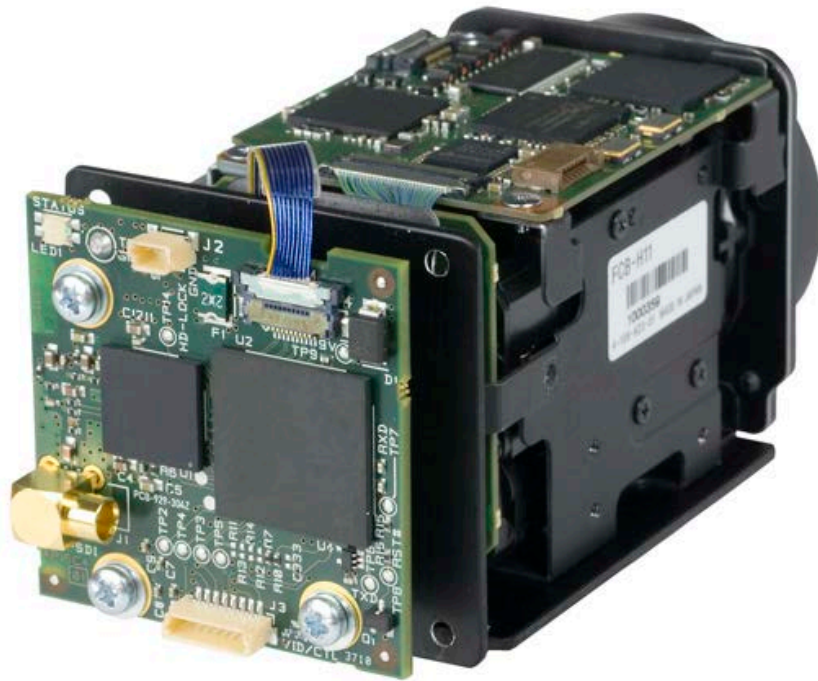


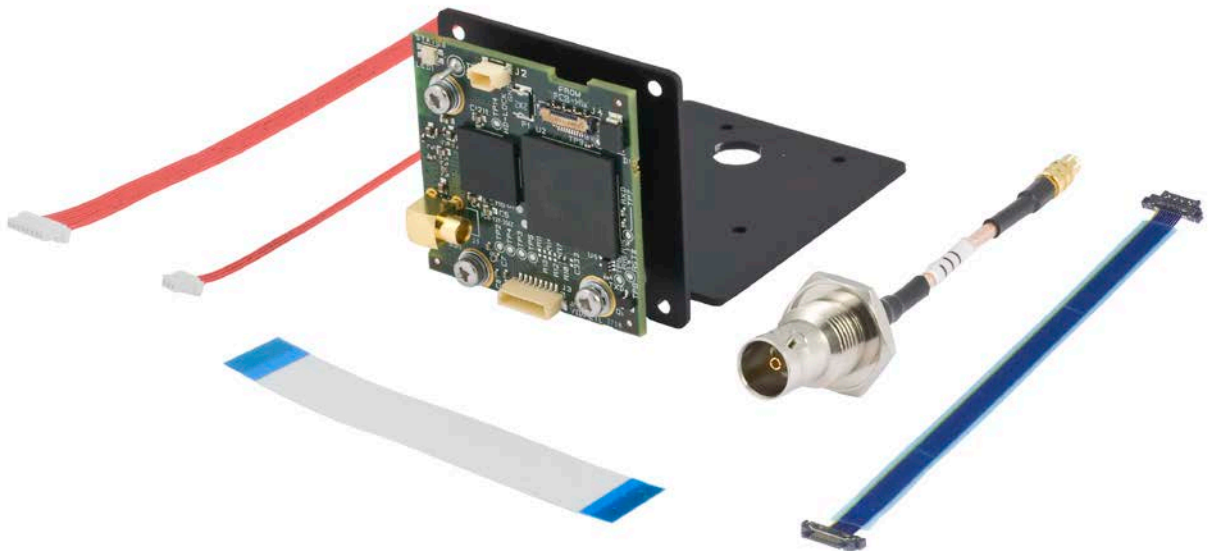
Figure 1: Interface module fitted via Mounting Bracket to rear of camera.

## KIT CONTENTS

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The **Active-FCB-HD-SDI** contains the following items (listed from left to right in reference to the photo below):

1. 8-way ribbon cable for serial communication and control. (Connects to J3).
2. 3-way ribbon cable for power. (Connects to J2).
3. Interface board.
4. Mounting kit (including bracket, screws and spacers).
5. 75 Ohm MCX to BNC cable. (Other lengths are available on request).
6. 10-way micro-coax digital video cable. (Connects to J4).
7. FFC (Flat Flexible Cable). (Connects to J5).



**Figure 2: Active-FCB-HDSDI Kit Contents.**

## PC CONNECTIVITY

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Active Silicon also manufactures and supplies a range of HD-SDI video capture cards for interfacing to this module if required. As well as zero CPU acquisition, these cards provide serial communications and access to the camera's reset line for control of standby mode. These cards are available in a range of formats – not only standard PC formats (PCI & PCI-Express) but also in embedded form-factors such as PCI/104-Express for embedded applications.

## CONNECTOR SPECIFICATION – ACTIVE-FCB-HDSDI

### HD-SDI Connector (J1)

The **Active-FCB-HDSDI** is fitted with a 75 Ohm MCX7 connector, allowing the use of RG179 coax cable for connection to the interface module.

Connector type: MCX7-J-P-H-RA-TH1-SKT.

Mating cable: RG179 Coaxial cable.  
(MCX7 to 75 Ohm bulkhead BNC adapter supplied.)

### Power in Connector (J2)

The **Active-FCB-HDSDI** is fitted with an industry standard 3-way connector for power in.

Connector type: JST BM03B-SRSS-TB.

Mating cable: Suitable cable supplied as part of the kit.

PIN	SIGNAL
1	9V $\pm$ 3V
2	GND
3	GND

### Signal and Control (J3)

The **Active-FCB-HDSDI** is fitted with an 8-way connector allowing access to the serial port, reset and analog video on the camera.

Connector type: JST BM08B-SRSS-TB.

Mating cable: Suitable cable supplied as part of the kit.

PIN	SIGNAL	LEVEL	NOTES
1	TXD	EIA/TIA-562 (Compatible with RS-232) Drive level +/- 4.5V Tolerant to +/- 25V. See Note 1.	Serial Control (Output from module/camera)
2	RXD	EIA/TIA-562 (Compatible with RS-232) Tolerant to +/- 25V. See Note 1.	Serial Control (Input to module/camera)
3	RESET IN	Ground short or drive low to operate (Internally pulled up to 3.3V)	Resets Camera.
4	CVBS Out	SD Composite	Composite video output (SD only).
5	GND	GND	GND
6	Y	HD Analog Component	Component output (HD only).
7	Cb	HD Analog Component	Component output (HD only).
8	Cr	HD Analog Component	Component output (HD only).

**Note 1:** The serial interface is EIA/TIA-562. This is compatible with RS-232 and also allows low voltage signalling down to +/-3.3V.

**Note 2: Standard Resolution (SD) analog out is only available in SD mode (and in this mode no digital output is available).**

**KEL10 Connector (J4)**

The **Active-FCB-HDSDI** is fitted with a 10 way miniature connector to link to the matching connector on the Sony FCB-H11.

Connector type: KEL SSL series.

Mating cable: KEL SSL20-10SSB-BH.  
(Suitable cable supplied as part of the kit).

**FFC24 Connector (J5)**

The **Active-FCB-HDSDI** is fitted with an industry standard 0.5mm pitch FFC (Flat Flexible Cable) connector to link to the matching CN901 connector on the camera.

Connector type: Hirose FH12A-24S-0.5SH.

Mating cable: e.g. Molex 98266-0251.  
(Suitable cable supplied as part of the kit).

**Video Mode DIP Switch (SW1)**

The **Active FCB-HD-SDI** is fitted with a 4-way DIP switch to control the video output modes on the FCB-H11 camera. Refer to the Notes section for additional information.

Sw1	Sw2	Sw3	Sw4	Video Format	Mode #
OFF	OFF	OFF	OFF	External (VISCA control)	0
OFF	OFF	OFF	ON	-	1
OFF	OFF	ON	OFF	-	2
OFF	OFF	ON	ON	-	3
OFF	ON	OFF	OFF	-	4
OFF	ON	OFF	ON	1080i / 59.94	5
OFF	ON	ON	OFF	720p / 50	6
OFF	ON	ON	ON	-	7
ON	OFF	OFF	OFF	-	8
ON	OFF	OFF	ON	1080i / 50	9
ON	OFF	ON	OFF	-	10
ON	OFF	ON	ON	-	11
ON	ON	OFF	OFF	-	12
ON	ON	OFF	ON	720p / 59.94	13
ON	ON	ON	OFF	-	14
ON	ON	ON	ON	-	15

**Notes:**

- 1) The DIP switch setting will only change the video output mode on cameras that natively support the video mode stated in the table. For cameras that do not support the stated video mode the DIP switch setting is ignored and the camera will continue to operate in the current video mode.
- 2) External (VISCA): The camera mode is changed by a VISCA serial commands, followed by a Reset.
- 3) The DIP switches to select the mode are read on power up only. Therefore to change mode, set the switches and then power cycle / power up the camera.



**Status LED (LED1)**

The **Active-FCB-HDSDI** is fitted with multi-LED to indicate camera status.

Solid Green: Camera and Interface Board are powered and the camera is sending valid video data.

Solid Red: Interface board is powered but no valid video data is being received from the camera. (This would indicate that the 10 way video cable (J4) and the 24 way FFC cable (J5) are not correctly connected to the Interface Board and camera.)

## CONFORMANCE

**HD-SDI:** **ACTIVE-FCB-HDSDI** is compliant with SMPTE 274M and SMPTE 296M.

**Approvals:** The **ACTIVE-FCB-HDSDI** has been designed for inclusion in systems meeting the following regulations and standards when housed in a suitable enclosure:

- EU    € mark for compliance with EMC EN 55022:1998 (class A) and EN 55024:1998 in accordance with EU directive 89/336/EEC.
- USA   EMC FCC Class A.

RoHS Compliant.

The printed circuit board is manufactured by UL recognized manufacturers and has a flammability rating of 94-V0.

## PHYSICAL AND ENVIRONMENTAL DETAILS

**Dimensions:** 42mm by 42mm by 13.6mm high.  
When the bracket is used, the depth of the camera is increased by 19.6mm.

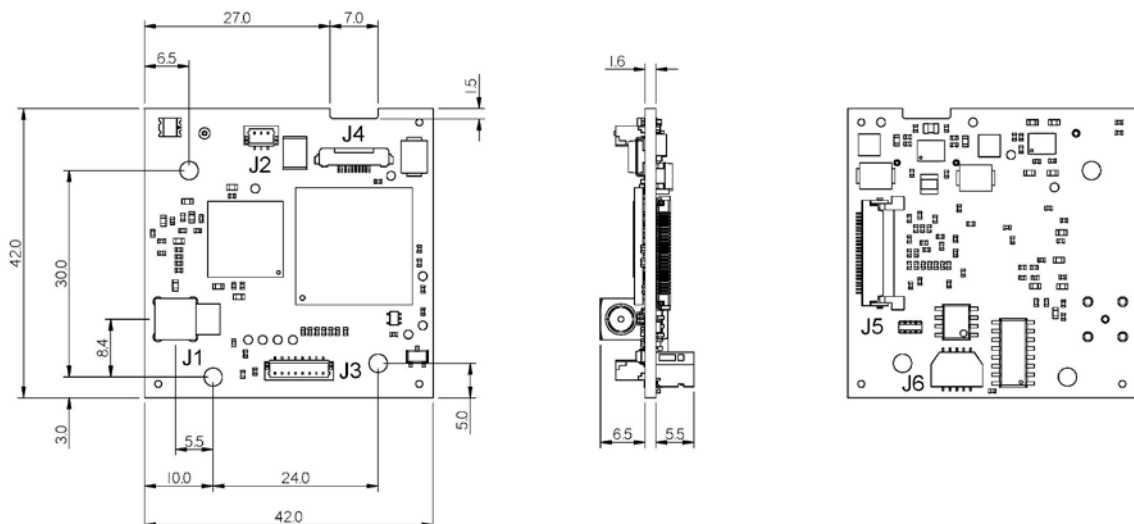
**Approximate weight:** 12g (excluding metal bracket).

**Power consumption (typical):** 90mA @ 9V.           With no camera connected.  
525mA @ 9V.           With FCB-H11 connected.

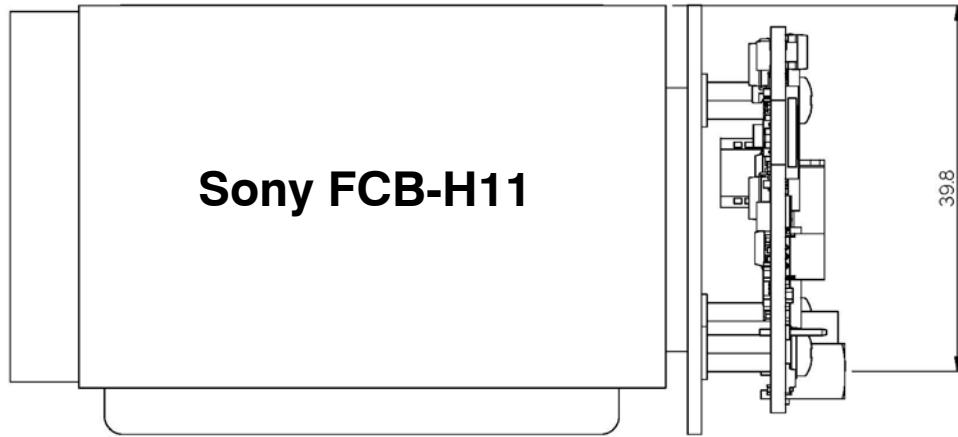
**Storage Temperature:** -15°C to +70°C.

**Operating Temperature:** -5°C to +70°C (ambient environment).

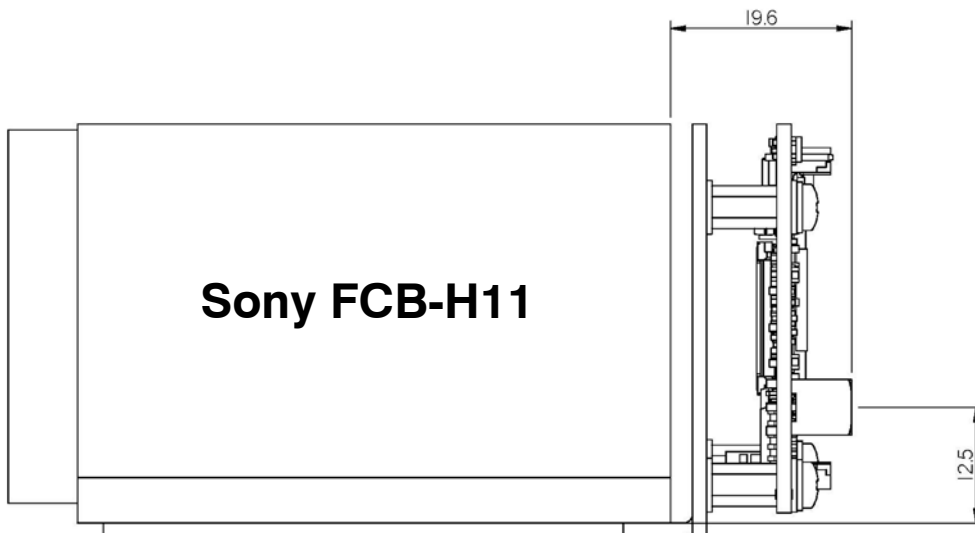
**Relative Humidity:** 10% to 90% non-condensing (operating and storage).



**Figure 3: PCB Mechanical Details (Top, Side and Bottom)**



**Figure 4: Module on Bracket and attached to Camera (Top View)**



**Figure 5: Module on Bracket and attached to Camera (Side View)**



## ORDERING INFORMATION

<b>PART NUMBER</b>	<b>DESCRIPTION</b>
<b>AS-HDSDI-IF-A</b>	<b>Active-FCB-HDSDI</b> interface module for Sony FCB digital interface.
<b>AS-HDSDI-IFKIT-A</b>	Interface kit to Sony FCB-H11 (or FCB-H10). Includes <b>AS-HDSDI-IF-A</b> interface module, all cables apart from the HD-SDI cable, and bracket. <i>Note: Camera sold separately.</i>
<b>AS-PHX-D10HDSDI-PE1</b>	HD-SDI frame grabber to connect to one Sony FCB-H11 with an <b>Active-FCB-HDSDI</b> . PCI Express bus with single lane (x1) bus interface.
<b>AS-PHX-D20HDSDI-PE4H</b>	HD-SDI frame grabber to simultaneously connect to two Sony FCB-H11s with an <b>Active-FCB-HDSDI</b> . PCI Express bus with four lane (x4) bus interface.
<b>AS-CBL-HDSDI-A-xM</b>	HD-SDI cable x meters in length. Standard stock lengths are 3m, 5m, 10m and 20m. Higher flex rating cables also available – contact your distributor for details.
<b>AS-PHX-SDK-xxx-CD</b>	Software Development Kit for xxx operating system. For a full list of all supported operating systems please refer to the SDK datasheet, or contact your distributor.

## THE FCB INTERFACE RANGE

The following products are available in the range:

- HD-SDI interface (digital interface for up to 100m cable length).
- CoaXPress interface (single coax digital interface for up to 130m cable length).

Active Silicon also provides a range of capture cards designed for use with the above interface modules.



## **CONTACT DETAILS**

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*Europe:*

Active Silicon Limited  
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)

*USA:*

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)