

Active FCB-EV-HD-SDI INTERFACE BOARD



- HD-SDI digital interface for the Sony FCB-EV series cameras (FCB-EV7520A/7500/7310/7300/7100/5500/5300)
- 1080p/1080i/720p high definition video
- Built in test pattern facility
- RS-232 serial communications

FEATURES

- HD-SDI interface solution for the Sony FCB-EV series of cameras.
- Includes interface module, cables and mounting kit.
- Uses the camera's digital output to give optimum image quality.
- Supports the following HD modes –
1080p at 25, 29.97 and 30Hz, 1080i at 50, 59.94 and 60Hz,
720p at 25, 29.97, 30, 50, 59.94 and 60Hz.
- Compliant with SMPTE 274M and SMPTE 296M.
- Video mode selection switches and built-in test pattern.
- RS-232 communications port for camera control.
- RoHS compliant.



OVERVIEW

The **Active FCB-EV-HD-SDI** is a complete interface solution to provide real-time HD-SDI video from the Sony EV series of block cameras.

This camera interface board takes full advantage of the high definition digital video provided by the FCB-EV block cameras. The interface board connects directly to the camera's digital output to provide superior image quality and supports all the HD-SDI modes of the camera (For 3G-SDI support, please see Active Silicon's Harrier range).

A DIP switch located on the rear of the board allows the HD video mode to be conveniently selected without the need to send serial commands to the camera.

The **Active FCB-EV-HD-SDI** has a built-in test pattern which conforms to the SMPTE RP-219-2002 specification (see Figure 2). The pattern generation feature is controlled via connector J3.

The product is supplied as a kit consisting of the interface module, mounting kit and cables, and for volume OEMs the board alone may also be ordered without the mounting kit and cables if required.

The physical outline of the **Active FCB-EV-HD-SDI** sits within the rear profile of the FCB-EV series of cameras and the supplied mounting kit allows the module to be securely and neatly attached to the camera (see Figure 1).

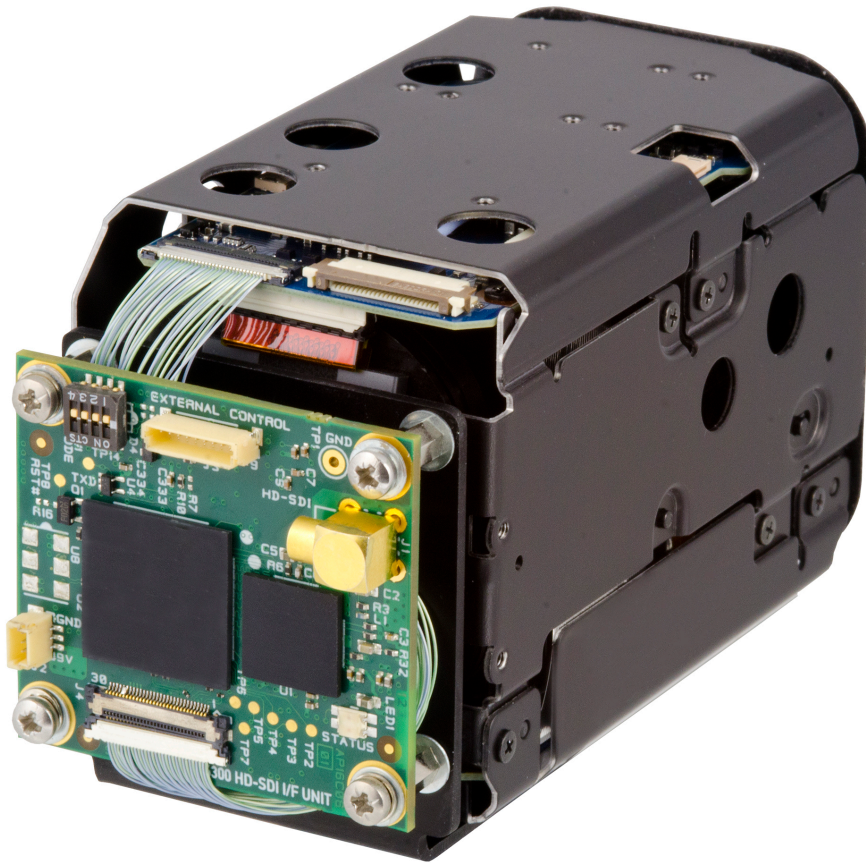


Figure 1: EV7500 camera with Active FCB-EV-HD-SDI interface board fitted



Figure 2: SMPTE RP-219-2002 test pattern available from the interface board

KIT CONTENTS

The **Active FCB-EV-HD-SDI** contains the following items (listed from left to right in reference to the photo below – Figure 3):

1. 9-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. 30-way micro-coax digital video cable.

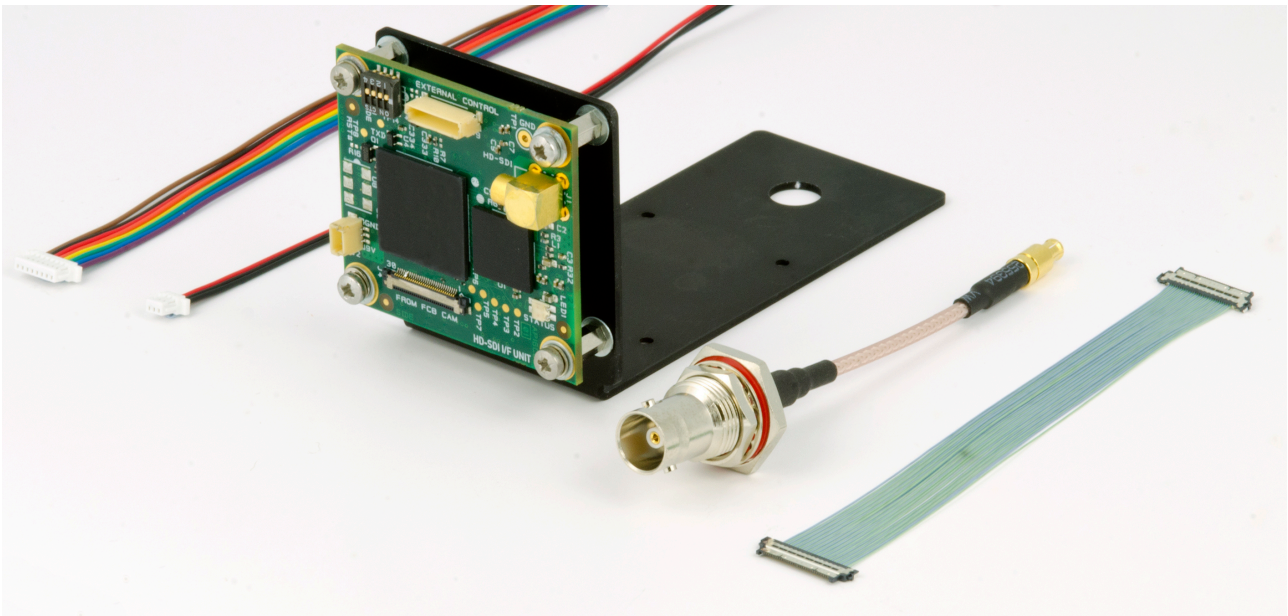


Figure 3: Interface Module Kit

PC CONNECTIVITY

Please contact Active Silicon for PC interface and acquisition solutions.

CONNECTOR SPECIFICATION

HD-SDI Connector (J1)

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

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

Mating Cable: MCX 75 Ohm plug, typically to RG179 coaxial cable.
(MCX to 75 Ohm bulkhead BNC adapter supplied.)

Power in Connector (J2)

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

Connector type: JST (Japan Solderless Terminals) BM03B-SRSS-TB.

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

PIN	SIGNAL	LEVEL
1	DC IN	6.25V to 12.25V
2	GND	GND
3	GND	GND

Signal and Control (J3)

The **Active FCB-EV-HD-SDI** is fitted with an industry standard 9-way connector allowing access to the camera serial port, reset, analog video outputs and also the interface module's test pattern mode.

Connector type: JST BM09B-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 See Note 1.	Serial Control (Output from module/camera)
2	RxD	EIA/TIA-562 (Compatible with RS-232) 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	Pattern Gen Select	Ground short or drive low to operate (Internally pulled up to 3.3V)	Enable On-board Test Pattern
5	GND	GND	GND
6	-		
7	-		
8	-		
9	-		

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. TxD and RxD tolerant to +/- 25V.

KEL30 Connector (J4)

The **Active FCB-EV-HD-SDI** is fitted with a 30-way miniature connector to link to the matching connector on the FCB-EV camera.

Connector type: KEL USL00-30L.

Mating cable: KEL USL20-30SS-010-C.
(Suitable cable supplied as part of the kit).

Video Mode DIP Switch (SW1)

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

Sw1	Sw2	Sw3	Sw4	Video Format	Mode #
OFF	OFF	OFF	OFF	External (VISCA)	0
ON	OFF	OFF	OFF	1080p30	1
OFF	ON	ON	ON	1080p29.97	14
OFF	ON	OFF	OFF	1080p25	2
ON	ON	OFF	OFF	1080i60	3
ON	ON	OFF	ON	1080i59.94	11
OFF	OFF	ON	OFF	1080i50	4
ON	OFF	ON	OFF	720p60	5
ON	OFF	ON	ON	720p59.94	13
OFF	ON	ON	OFF	720p50	6
ON	ON	ON	OFF	720p30	7
OFF	OFF	ON	ON	720p29.97	12
OFF	OFF	OFF	ON	720p25	8
OTHER				Reserved	-

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-EV-HD-SDI** 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 typically indicate that the 30-way video cable (J4) is not correctly connected.

CONFORMANCE

HD-SDI: Active FCB-EV-HD-SDI is compliant with SMPTE 274M and SMPTE 296M.

Approvals: The Active FCB-EV-HD-SDI 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 55022:2010 (class A) and EN 55024:2010 in accordance with EU directive 2014/30/EU.
- 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: 46mm by 42mm by 13.6mm high.
When mounted to the camera using the supplied fixings, the depth of the camera is increased by 19.6mm.

Weight: 10g (excluding mounting kit). Mounting kit weighs 2g.

Power consumption: 130mA @ 9V. Typical current consumption under normal operation conditions for the interface module.
Camera and interface module combined typically draw 410 mA @ 9V.

Storage Temperature: -20°C to +70°C.

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

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

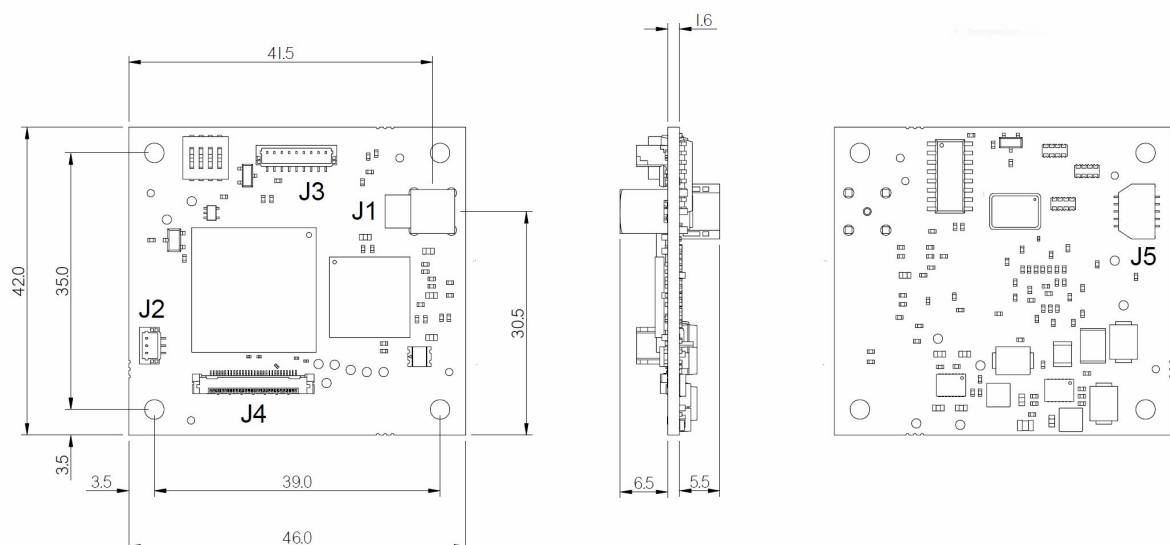


Figure 4: PCB mechanical details (top, side and bottom).



Figure 5: Board attached to EV7500 camera (top view).

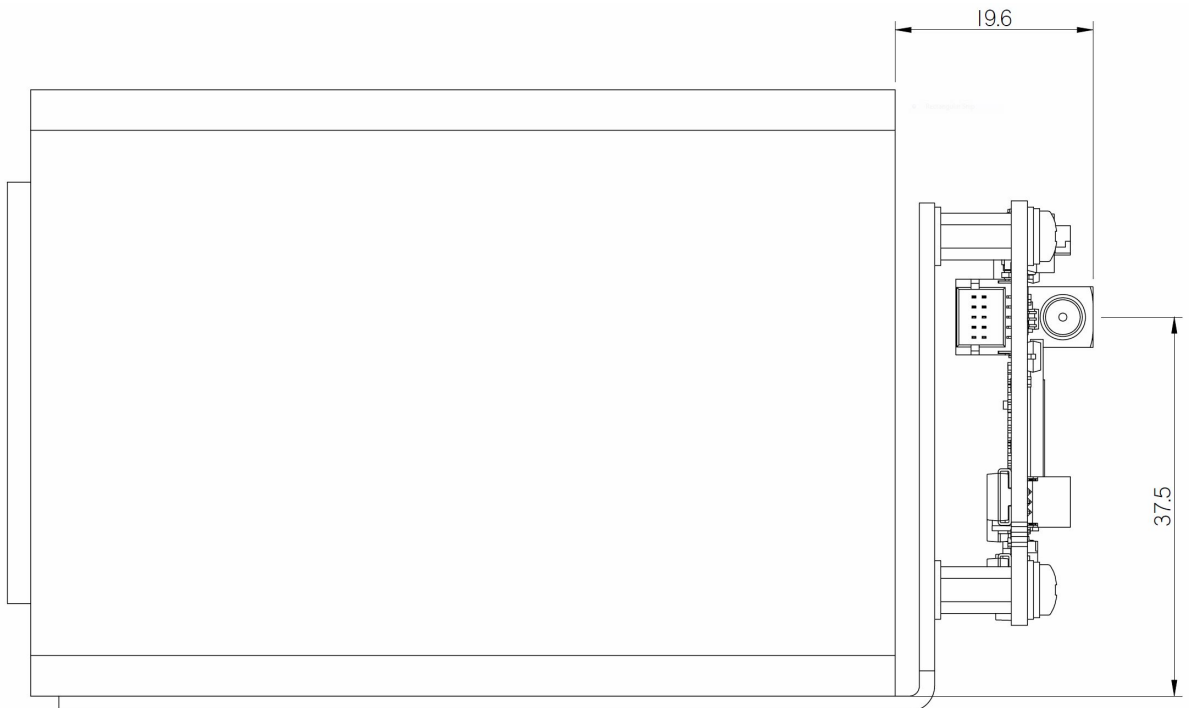


Figure 6: Board attached to EV7500 camera (side view).

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
AS-HSDSI-004-IFKIT-A	HD-SDI interface kit for Sony FCB-EV7520A, EV7500, EV7310, EV7300, EV5500 and EV5300 cameras. Includes interface module, cables and mounting kit. <i>Note: Cameras in the EV range can also be purchased from Active Silicon with the interface kit pre-fitted.</i>
AS-HSDSI-004-IF-KIT-B	HD-SDI interface kit for Sony FCB- EV7100 camera. Includes interface module, cables and mounting kit. <i>Note: Cameras in the EV range can also be purchased from Active Silicon with the interface kit pre-fitted.</i>
AS-CBL-VDM230-xM	HD-SDI cable x meters in length. Standard stock lengths are 3m, 5m, 10m and 20m. High-flex cables are also available.

THE FCB INTERFACE RANGE

The following products are also available in the range:

- Harrier 3G-SDI camera interface boards are compatible with Sony FCB cameras of the EV and EH series.
- HD-SDI interface modules are also available for the Sony FCB-H11, FCB-EH and FCB-SE600 cameras.
- CoaXPress interface module for Sony FCB-H11. (Single coax solution carrying power, data and control all on one coax cable for up to 130m cable length.)



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