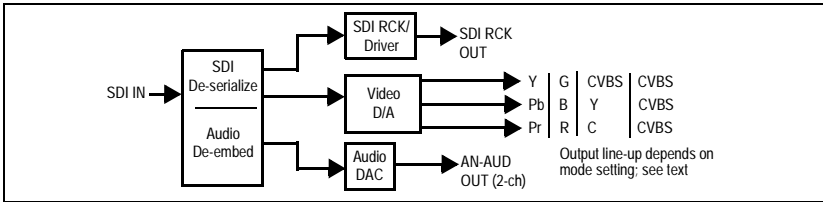# SDI-To-Analog Converter

HD/SD-SDI-to-Analog Video with Audio De-Embedder

The **BlueBox™ SDI-To-Analog Converter** (hereinafter "BlueBox™ SDI>Analog") provides a small "throwdown" package that offers HD/SD-SDI to analog video-audio conversion. Component and composite conversions are available, with support for NTSC/PAL CVBS, and PAL-M CVBS outputs. The supported SDI input formats are listed below.

• 1920 x 1080i 50/5994/60	• 720 x 480i5994 (SD-NTSC)
• 1920 x 1080psf 2398/24/25/2997/30	• 720 x 576i50 (SD-PAL)
• 1280 x 720p50/5994/60	

Note: BlueBox™ SDI>Analog does not perform format cross, up, or down-conversions. Selected video output mode must be set to be compatible with input (e.g., CVBS modes are compatible only with SD-SDI input). The unit receives its DC power from either connecting its USB port to associated equipment, or by the supplied AC adapter.

Connecting BlueBox™ SDI>Analog

1. Connect BlueBox™ Analog>SDI to DC power using either or both the USB port or the supplied AC adapter. Dual source (simultaneous) use provides power redundancy.

   Note: USB connection derives only DC operating power from USB port. This connection does not provide remote control or monitoring.

2. Connect SDI input and analog output. This provides the basic conversion connections. Other connections do not require termination if unused.

Video Output Modes

BlueBox™ SDI>Analog provides highly flexible output mode selection using DIP switch positions SW1 thru SW4, offering the modes listed below. Refer to diagram on rear page or label on unit for switch positions. Connector port functions depend on mode selection (see unit label).

HD Modes	SD Modes	
• YPbPr • RGB	• YPbPr, SMPTE levels • YPbPr, Betacam™ levels • YPbPr, MII levels	• Y/C (NTSC/PAL and PAL-M) • CVBS (NTSC/PAL and PAL-M)
Note: CVBS modes provide a 1x3 DA, with CVBS output on all three BNC video outputs. Selectable NTSC pedestal On/Off for CVBS modes.		

Audio De-Embedding

BlueBox™ SDI>Analog provides de-embedding of SDI embedded channel pairs 1/2, 3/4, 5/6, or 7/8 from the SDI input to analog audio outputs **AUDIO OUT (L/R)** RCA connectors. Refer to diagram on rear page or label on unit for switch positions.

Unbalanced Audio Levels and This Device

The unbalanced "RCA" audio outputs on this device correspond to 2.2 Vrms output when sourced from a unity-gain 0 dBFS digital sine-wave source. Consumer audio is specified in dBV with a nominal (or recording) level of -10 dBV. The 2 Vrms maximum output level corresponds to +6 dBV. The unbalanced analog outputs on this device allow for 16 dB of headroom above the nominal -10 dBV consumer level ("headroom" is the range between the maximum and nominal audio levels).

Professional balanced analog audio levels in the US typically use a +4 dBu nominal level with 20 dB of headroom (-20 dBFS). The maximum level for balanced analog interfaces is +24 dBu.

The headroom difference between consumer and professional audio will result in a lower RCA consumer level when converting from professional balanced analog audio. For example, if pro level analog audio is received and transmitted via AES or embedded SDI to a receiver converting to RCA analog audio, the output will be 4 dB lower, with a nominal level of -14 dBV.

Status Indicator

BlueBox™ SDI>Analog has a **Status** LED on the side of the unit which functions as follows:

- **Solid ON** – Input lock OK.
- **Slow Flash** – Unlocked to input video; input video not present

Specifications

Item	Description/Specification
Standards supported:	SMPTE 259M, 292M
Inputs:	- HD/SD-SDI, 75Ω BNC - DC Power (+5 VDC via USB or adapter)
Receiver EQ Performance	HD: 200m of Belden 1694A (or equivalent) SD: >300m of Belden 1694A (or equivalent)
Outputs:	- Analog video (selectable as component, CVBS+Y/C, or 3x CVBS) - Reclocked SDI, 75Ω BNC - Analog audio out L/R pair, unbalanced "consumer" level RCA
Audio conversion format:	48 kHz sampling, 24-bit
Power source:	5-16 VDC, 2.4 W. Power-sourced directly from host equipment USB port. Can also be powered using corded AC adapter (included).
Dimensions (WxHxD):	5.5" x 3" x 1" (including connector projections) (139 x 77 x 26 mm)

Warranty and Service Information

Cobalt Digital Inc. Limited Warranty

This product is warranted to be free from defects in material and workmanship for a period of five (5) years from the date of shipment to the original purchaser, except that 4000, 5000, 6000, 8000, and Blue Box series power supplies, and Dolby® modules (where applicable) are warranted to be free from defects in material and workmanship for a period of one (1) year.

Cobalt Digital Inc.'s ("Cobalt") sole obligation under this warranty shall be limited to, at its option, (i) the repair or (ii) replacement of the product, and the determination of whether a defect is covered under this limited warranty shall be made at the sole discretion of Cobalt.

This limited warranty applies only to the original end-purchaser of the product, and is not assignable or transferrable therefrom. This warranty is limited to defects in material and workmanship, and shall not apply to acts of God, accidents, or negligence on behalf of the purchaser, and shall be voided upon the misuse, abuse, alteration, or modification of the product. Only Cobalt authorized factory representatives are authorized to make repairs to the product, and any unauthorized attempt to repair this product shall immediately void the warranty. Please contact Cobalt Technical Support for more information.

To facilitate the resolution of warranty related issues, Cobalt recommends registering the product by completing and returning a product registration form. In the event of a warrantable defect, the purchaser shall notify Cobalt with a description of the problem, and Cobalt shall provide the purchaser with a Return Material Authorization ("RMA"). For return, defective products should be double boxed, and sufficiently protected, in the original packaging, or equivalent, and shipped to the Cobalt Factory Service Center, postage prepaid and insured for the purchase price. The purchaser should include the RMA number, description of the problem encountered, date purchased, name of dealer purchased from, and serial number with the shipment.

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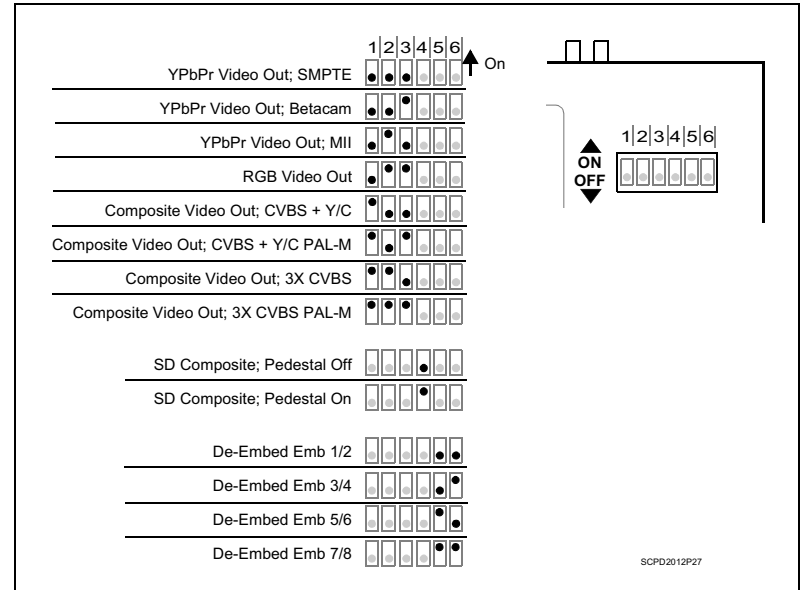
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