

# 7736CE2, 7736CE2-A4, 7736CE2-A8

## Dual Composite Encoder

The 7736CE2 series of modules are broadcast quality component serial digital to composite analog video converters with an extensive list of advanced features.

The 7736CE2-A4 and 7736CE2-A8 versions offer respectively four (two per encoding channel) or eight (four per encoding channel) high quality audio digital to analog converters that can be driven from discrete AES inputs or

audio embedded within the video input signal. The module features a clean (asynchronous) and a fast (synchronous) input video lock modes to handle upstream switches. In addition, control of card is via an On-Screen Display or remotely via VistALINK®.

### Features & Benefits

- Two component serial digital inputs (525 or 625)
- One composite analog video output per channel WITHOUT OSD text
- Internal processing to maintain 10 bit digital video quality
- 12 bit output video digital to analog conversion
- One monitoring quality video output with OSD for card configuration
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio)
- User selectable horizontal blanking interval width (narrow or normal)
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or Hi-Z, (jumper configurable) input impedance
- Video Frame synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Input video lock mode: clean or fast
- Adjustable free running frequency. Both channels must be free running to be able to adjust frequency
- A comprehensive on screen display for module config

### The Features of “-A4” and the “-A8” Options:

#### 7736CE2-A4 (per video channel)

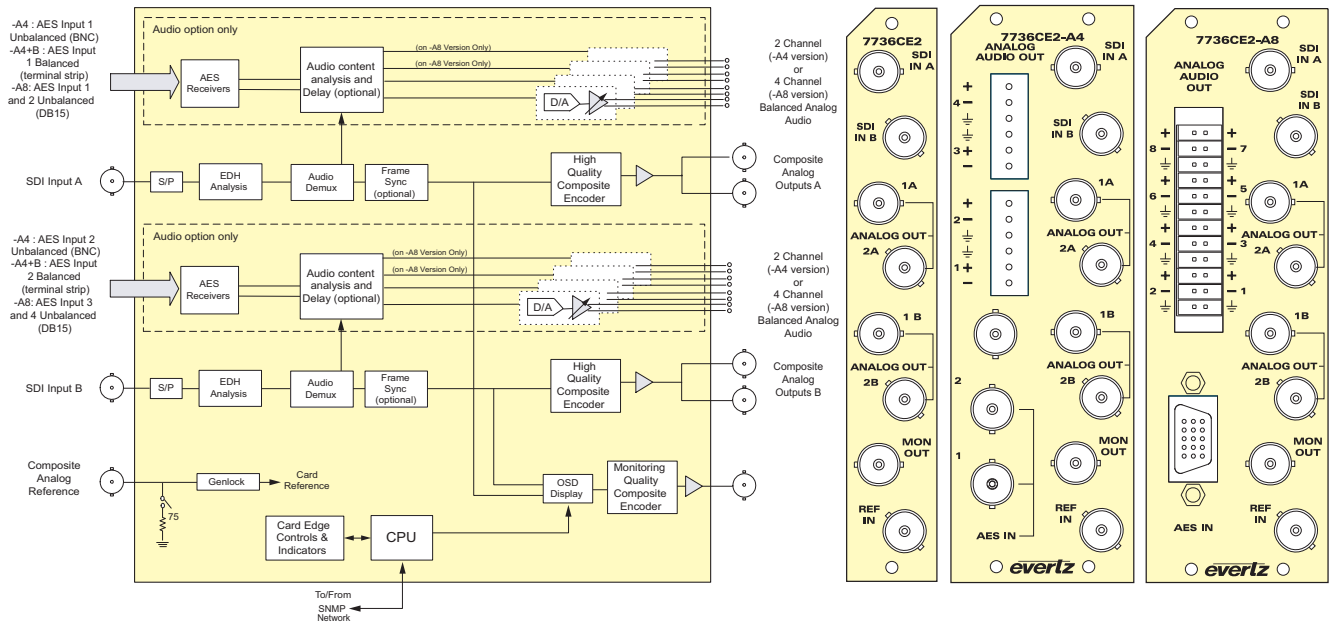
- One half group (two channels) of synchronous 20-bit audio may be de-multiplexed from the incoming digital video
- One unbalanced (or balanced) AES audio input (up to 48kHz, 24 bits) on BNC (or terminal strip for balanced audio)
- Two high quality 24-bit audio channels are converted to balanced analog on two removable barrier strips

#### 7736CE2-A8 (per video channel)

- One full group (four channels) of synchronous 20-bit audio may de-multiplexed from the incoming digital video
- Two unbalanced AES audio input (48kHz, 24 bits) supplied via 15dB
- Four high quality 24-bit audio channels are converted to balanced analog on two removable barrier strips

#### 7736CE2-A4 and 7736CE2-A8

- User selects either the de-embedded audio or the input AES audio
- Audio delay tracks the video delay with the (+S option)
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 2.5 seconds
- Audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio



The Complete Solution Provider



# 7736CE2, 7736CE2-A4, 7736CE2-A8

## Dual Composite Encoder



### Specifications

#### Serial Video Input:

Standard: SMPTE ST 259-C - 525 or 625 line component  
 Number of Inputs: 2  
 Connector: BNC per IEC 61169-8 Annex A  
 Return Loss: > 15dB to 270MHz  
 Embedded Audio: SMPTE ST 272-A  
 Freq Lock Range:  $\pm 75$ ppm from nominal  
 Lock up time on a hot switch: None or 7 frames (based on lock mode)

#### Analog Broadcast Video Output:

Standard: NTSC, SMPTE ST 170, PAL ITU624-4  
 Number of Inputs: 2 per input video  
 Connector: BNC per IEC 61169-8 Annex A  
 Signal Level: 1V nominal  
 Output Impedance: 75 $\Omega$   
 DC Offset: 0V  $\pm 50$ mV  
 Return Loss: > 45dB to 10MHz  
 Freq Response: <  $\pm 0.1$ dB to 4MHz (response will depend on selected filtering)  
 Differential Phase: < 0.5° (< 0.3° typical)  
 Differential Gain: < 0.5% (< 0.3% typical)  
 SNR: > 75dB (both channels black video, 100kHz to 5MHz)  
 Output Level Control Range:  $\pm 10$ %  
 Black Level Control Range:  $\pm 7.5$  IRE  
 Chroma Level Control Range:  $\pm 10$ %  
 Hue control range:  $\pm 15^\circ$  (NTSC only)  
 Minimum Delay: 3 $\mu$ s  
 Maximum Delay: 1 frame + 3 $\mu$ s (+S option only)

#### Reference Video Input:

Standard: NTSC, SMPTE ST 170 PAL, ITU624-4  
 Number of Inputs: 1  
 Connector: BNC per IEC 61169-8 Annex A  
 Signal Level: 1V nominal (0.5V to 1.5V)  
 Freq Lock Range:  $\pm 75$ ppm from nominal  
 Input Impedance: 75 $\Omega$  or High impedance (jumper selectable)  
 Return Loss: > 25dB to 10MHz  
 Max Subcarrier Jitter: < 3°  
 Free-Running Frequency Control Range: >  $\pm 10$ ppm (>  $\pm 270$ Hz)

#### Analog Monitoring Video Output:

Standard: NTSC, SMPTE ST 170 PAL, ITU624-4  
 Number of Outputs: 1  
 Connector: BNC per IEC 61169-8 Annex A  
 Signal Level: 1V nominal  
 Output Impedance: 75 $\Omega$   
 Return Loss: > 35dB to 10MHz

#### Analog Audio Outputs (-A4 and -A8 only):

Number of Outputs: 4 (2 per video channel) 7736CE2-A4  
 8 (4 per video channel) 7736CE2-A8  
 Type: Balanced analog audio  
 Connector: Two 6-pin removable terminal strips 7736CE2-A4  
 Single 16 pin removable terminal strip, 7736CE2-A8  
 Output Impedance: 66 $\Omega$  balanced  
 Sampling Frequency: 48kHz  
 Signal Level: 0dBFS a 12 to 25dBu (user-settable)  
 Freq Response: <  $\pm 0.05$ dB (20Hz to 20kHz)  
 Dynamic range: 24 bits when AES inputs selected, 20 bits when embedded audio selected  
 THD+N: < 0.001% (> 100dB) @ 1kHz, -1dBFS  
 Crosstalk: < -105dB (20Hz to 20kHz)  
 DC Offset: <  $\pm 30$ mV  
 SNR: > 110dB "A" Weighting  
 Inter-Channel Phase Error: <  $\pm 1^\circ$  (20Hz to 20kHz)

#### Unbalanced AES Audio Inputs (-A4 and -A8 only):

Number of Inputs: 2 for 7736CE2-A4  
 4 for 7736CE2-A8  
 Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES  
 Connectors: BNC per IEC 61169-8 Annex A (7736CE2A-4)  
 15dB (7736CE2A-A8)  
 Resolution: Up to 24 bits  
 Input Sampling Rate: 32kHz to 48kHz  
 Minimum I/O Delay: 3.5ms

#### Balanced AES Audio Inputs (-A4 only):

Number of Inputs: 2  
 Input Standard: AES3-1992, balanced synchronous or asynchronous PCM AES  
 Connectors: One 6-pin removable terminal strip  
 Impedance: 110 $\Omega$   
 Resolution: Up to 24 bits  
 Sampling Rate: 32kHz to 48kHz  
 Input Level: 2V to 7V p-p  
 Minimum I/O Delay: 3.5ms

#### Electrical:

Voltage: +12V DC  
 Power: 10.2W (7736CE2)  
 17.75W (7736CE2-A4)  
 18W (7736CE2-A8)  
 EMI/RFI: Complies with FCC Part 15, Class A  
 EU EMC directive

#### Physical (number of slots):

350FR: 2  
 7700FR-C: 2  
 7800FR: 2

### Ordering Information

7736CE2	Dual Composite Encoder
7736CE2-A4	Dual Composite Encoder with 4 analog outputs
7736CE2-A8	Dual Composite Encoder with 8 analog outputs

#### Enclosures

350FR  
 7700FR-C  
 7800FR  
 7801FR  
 S7701FR

3RU Portable Multiframe which holds up to 7 single slot modules  
 3RU Multiframe which holds up to 15 single slot modules  
 3RU Multiframe which holds up to 15 single slot modules  
 1RU Multiframe which holds up to 4 single or 2 dual slot modules  
 Standalone Enclosure

**Ordering Options** Rear Plate must be specified at time of order (Eg: Model +3RU)

+S Optional Frame Synchronizer

#### Rear Plate Suffix

+3RU 3RU Rear Plate for use with 350FR, 7700FR-C or 7800FR Multiframe  
 +SA Standalone Enclosure Rear Plate