

IQDEC03

Composite Decoder, Synchronizer, Audio Embedder with Noise Reduction and Auxiliary SDI Input – 12 bit

The IQDEC03 provides a complete analog front-end with 12-bit composite decoding, synchronization and analog audio ingest in one compact module. Advanced adaptive 2-D decoding technology makes the IQDEC03 ideal for most analog to digital or, when paired with an upconverter, analog to HD applications. The IQDEC03 handles most composite analog signal formats including PAL, NTSC and SECAM. The full frame synchronizer with horizontal and vertical phasing controls allows the output to be timed to your house or studio reference. In addition to its high quality video performance, the IQDEC03 can digitize up to 4 channels of analog audio for both embedding into the SDI stream and outputting as two AES streams. What is more, an auxiliary SDI input is included so that the IQDEC03 can be easily integrated into mixed analog/digital environments. Proc. amp controls and a powerful built-in noise reducer complete the specification. Noise reduction is targeted at preserving the original content while eliminating the objectionable artifacts of analog working, and the algorithms are tuned to ensure optimum quality and lowest bit-rates if the signal is subsequently compressed.

Does this module suit your application?

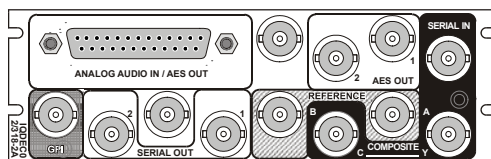
- 12-bit multi-standard decoder with frame synchronizer and analog audio embedder
- Adaptive line comb decoding
- Input standards – PAL*, NTSC*, NTSC-J, N4.43, PAL60, PALN*, PALM* or SECAM*
- *Auto detection of input standards
- Minimal delay through the unit - < 7 lines (lock to input, decoder and noise reducer in minimum delay mode)
- Firewall for video and processed PCM audio to provide a continuous valid output
- Motion adaptive recursive noise reducer with automatic noise floor measurement
- Horizontal and vertical enhancer
- VHS mode: Rugged sync and clock recovery ensures reliable operation for VHS playback and other noisy or unstable inputs
- Y/C input, composite and SDI inputs available
- SECAM adaptive notch and chroma median filters
- Selectable default output on loss of input - Frame freeze, pattern or input pass
- Selectable VBI pass through (pass flat or blank for each VITS line)

- Adjustment of video gain, black level, chroma gain, NTSC hue, horizontal Y/C timing and picture position
- A total of 4 channels of embedded audio can be processed, 2 pairs selectable from any of the four groups
- 4 x assignable 8 channel audio mixers
- Flexible audio delay features including tracking delay to keep audio and video in perfect sync
- Full audio proc-amp including - gain, mute, polarity invert, and channel routing

Why should you choose this module?

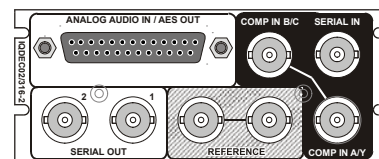
- A complete analog ingest solution for both video and audio in a compact module making system integration easy
- Proc. amp and noise reduction provides complete signal conditioning solution in one package for connecting operational areas
- Analog and SDI inputs allow mixed working or a future-proof upgrade without changing modules
- 12-bit decoding technology means superior picture quality with minimum MPEG bit usage

Order codes for IQH3A/1A enclosures



IQDEC0318-2A 12 bit decoder with synchronizer, analog audio embedder and noise reduction. 2 composite, 1 Y/C and 1 SDI inputs, 2 SDI outputs, 4 analog audio inputs, 2 AES outputs (balanced, on 25D, and unbalanced on 25D and BNC)

Order codes for other enclosures

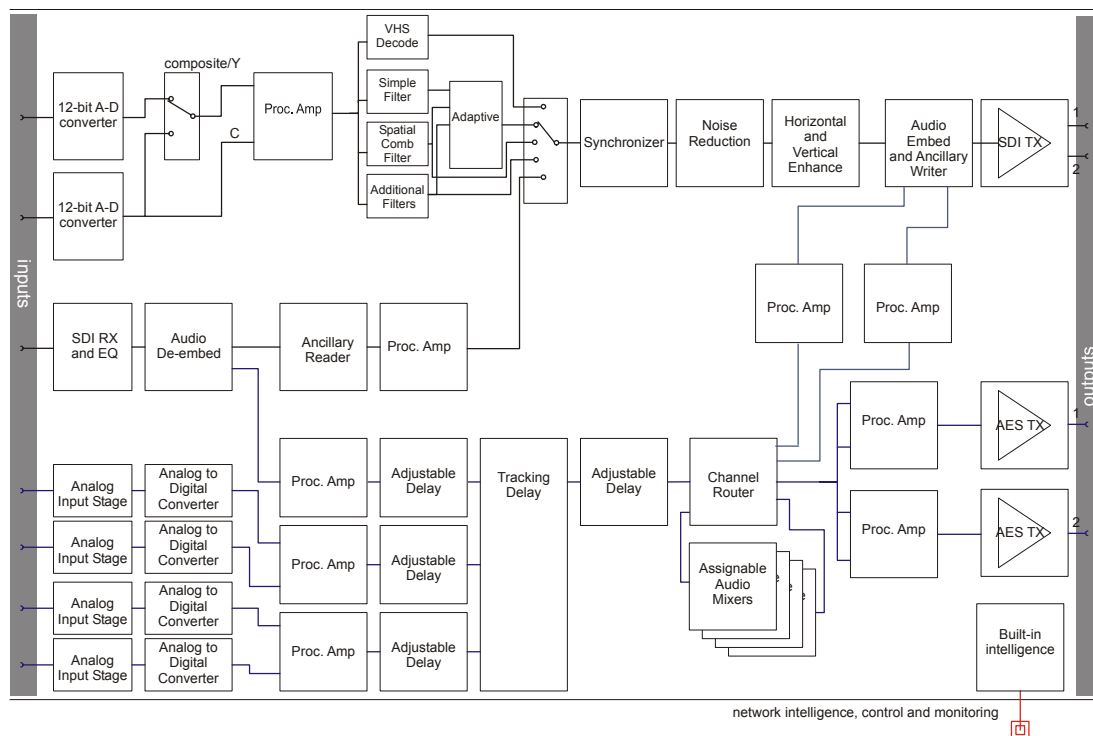


IQDEC0316-2 12 bit decoder with synchronizer, analog audio embedder and noise reduction. 2 composite, 1 Y/C and 1 SDI inputs, 2 SDI outputs, 4 analog audio inputs, 2 AES outputs (balanced and unbalanced on 25D)

For more details on enclosure types please refer to the Frames/Enclosures section

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Inputs & Outputs

Signal Inputs

Composite Video.....	2 via BNC connectors, isolated
Y-C	1 via BNC connectors
Serial Digital.....	1 via BNC connectors
Analog Audio	4 Channels (2 Stereo Pairs) via 25D connector
Standards.....	PAL/NTSC/NTSC-J/PAL-M /PAL-N/SECAM/N4.43
Reference.....	1 analog loop through via BNC connectors

Signal Outputs

Serial Digital.....	2 x SDI via BNC connectors
AES Audio	2 pairs (4 channels) balanced and unbalanced via 25D and unbalanced via BNC connectors (Note: Compatible with PCM embedded audio sources only)
Standards.....	SMPTE 259M-C-1997, SMPTE 272M-A-1994, AES3-1992

Card Edge & RollCall Controls

Control Interface

GPI/O	Closing contact input/output via BNC connector
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Card Edge Controls

None

Card Edge Indicators

CPU running/Power.....	Flashing = OK
Analog Video Present	Lost = Off, Good = On (Green)
SDI Present	Lost = Off, Good = On (Green)
Analog Video Error	Good = Off, Error = On (Yellow)
SDI Error	Good = Off, Error = On (Yellow)
Reference Present	Lost = Off, Good = On (Green)
Reference Error	Good = Off, Error = On (Yellow)

Functions Available via RollCall Only

Audio Controls

Line Up Tone Level.....	-24 dBu to +10 dBu in 0.5 dB steps
Headroom	+4 to +24 dB in 0.5 dB steps (subject to a max input level of +24 dBu)
Set Audio Monitor Thresholds	High and low levels, time delay
External Input Audio Delay ...	Up to 1.5 s additional delay in 1ms steps
Input Side Control Proc	Independent Gain, Mute, Polarity & Mono control over de-embedded and analog input channels
Digital Input Gain	±18 dB

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Analog Input Gain.....	±34 dB (subject to Line up and Headroom levels)
Channel Routing	Output channels routed from analog pair 1, analog pair 2, test tone, SDI and audio mixers
Channel Mixing.....	Mixer channels routed from analog pair 1, analog pair 2, test tone and SDI
Output Side Control Proc	Independent Gain, Mute, Polarity & Mono control over embedded and AES output channels.
Digital Output Gain	±18 dB
Global Delay Offset.....	Up to +2.5 s in 1ms steps, common to all processed audio.
Variable Audio Delay Control Source	Up to 1 s from RollTrack + GPI + video synchronizer
Audio Level Slew Rate.....	Instant, fast, medium, slow
Validity Bit.....	Clear or set
Tone Frequency, Amplitude & Ident	2-channel tone generator.
Tone Frequency	100 Hz to 15 kHz in 100 Hz steps
Tone Channel Ident	0.5 s interruption every 2 s

Video Controls

Input Select	Composite A / B, YC, SDI
Composite Input Standard ..	Auto [PAL, NTSC, PALM, PALN, SECAM] / Manual [PAL, NTSC, NTSC-J, PALM, PALN, SECAM, N4.43]
SDI Input Standard.....	Auto / Manual [525 / 625]
Freeze	Off / On
Luma Gain.....	±6 dB
Chroma Gain.....	±6 dB
Black Level.....	±120 mV
NTSC Hue.....	±45°
Y/C Timing	+592 ns in 148 ns steps
Picture Position	±592 ns in 148 ns steps
Blanking	Left, right, top, bottom, color
Noise Reducer Mode & Noise Measurement	Auto / Manual noise measurement Normal / Minimum delay
Noise Threshold	Auto Bias [±7] / Manual [0 to 15]
Noise Reducer Strength	Luma [0 to 31], Chroma [0 to 31]
H Enhance	Off / [On – low, medium, high]
H Enhance Frequency	2.25 MHz or 3.375 MHz
V Enhance.....	Off / [On – low, medium, high]
Decoder Mode	Simple, Studio, VHS/Unstable
SECAM Notch.....	Adaptive/Controllable
SECAM Luma Bandwidth....	Wide/Medium/Narrow
SECAM Bottles	Auto/On/Off

Color Killer	Chroma ON / Chroma OFF / Auto [QAM standards: Chroma off = chroma mute + Y notch SECAM: Chroma off = chroma mute only]
Genlock H Phase.....	± ½ line in 1 pixel steps
Genlock V Phase	±262/312 lines in 1 line steps
Genlock Mode.....	Free-run / Lock to reference / Lock to input (minimum delay)
H Delay.....	1 line in 1 pixel steps
V Delay	524/624 lines in 1 line steps
Additional Video Delay	0, 1 or 2 frames of delay
NTSC lines 11 to 20 and 274 to 282	Blank, pass as VBI, decode VBI
NTSC line 22, 283 and 285	Blank, pass as data, pass as picture
NTSC line 21 and 284	Blank, pass as data, pass as picture, pass as closed captions
PAL lines 7 to 22 & 320 to 335	Blank, pass as VBI, decode VBI
PAL line 23	Blank, pass as WSS, pass as picture
Horizontal Ancillary Blank.....	Off / On

Other Controls

Pattern Enable	Off / On
Pattern Select.....	Black / EBU Color Bars / 100% Color Bars / Ramp / Multi-Burst / Pulse & Bar / Animated Bar
Caption Enable	Off / On
Caption Generator	Programmable up to 19 characters
GPI Action	Memories 1 to 8 / Pattern / Freeze / Audio delay
GPI Polarity.....	High / Low
GPO Action	Input loss / Standard / Video delay
GPO Polarity.....	High / Low
User Memories	Name, clear, save and recall 8 user memories
Default Video Output	Pass Video / Freeze / Pattern / Pattern and Caption
Default Audio Output	Silence
Preset Unit.....	Returns all settings to default

Reporting * also Logged

Input Status	*Input present, *Input line standard, *Composite color standard
Input Error	One or more inputs have unselected line standard
Reference Status	*Ref present, *Ref standard
Reference Error	Standard different to selected input

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EDH	*Presence / *Error-Minute / *Error-Hour
Input Ancillary Error	Bad checksums, invalid formatting of HANC
Embedded Audio Status.....	*Input audio pair present, *Input audio pair non-PCM
Audio Bus Monitor.....	*Silence, *High Level, *Low Level, *Overflow for processed audio channels
Analog Audio Input_Monitor	*Silence, *High Level, *Low Level, *Overflow for analog audio input channels

RollTrack Input

Delay	Audio delay – Fixed, RollTrack + Fixed, Internal Sync ± Fixed
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RollTrack Output

Delay	Current video / audio delay
Input State.....	Present / line standard
Reference State.....	Present / error
Embedded Audio Status.....	Input audio pair present

Specifications

Video Specifications

Video Internal Processing	4:2:2 with 10 bit data paths
Frequency Response (Studio Mode)	
Y	5.75 MHz ±0.1dB
PbPr	1.5 MHz -3dB
Frequency Response (VHS Mode)	
Y	5 MHz +0.2 dB, -0.5 dB
PbPr	1.5MHz -3dB typ
Composite Input Return Loss	Better than 35 dB to 5 MHz
Composite level/impedance	1 V pk-pk typ. Into 75 Ohm
Serial Input Return Loss.....	Better than 15 dB from 100 kHz to 270 MHz
Maximum Serial Input Cable Length	> 200 m (PSF1/2 or equiv. cable)
Serial Output Level	800 mV ±5%
Output Overshoot.....	< 70 mV
Output Return Loss	Better than 15 dB to 270 MHz
Output Jitter	< 0.2 UI (with 10 Hz High pass filter selected on 601 monitor)
Reference Return Loss	Better than 35 dB to 5.8 MHz
Reference Input Level.....	1 Vp-p ± 3 dB
Sync Level.....	0.3 V ± 6 dB into 10k Ohms

Delay through the unit

Decoder Delay.....	<2 lines
Synchronizer Delay.....	16 µs (Lock to Input) 1 frame + 16 µs (Lock to Reference)

Additional Processing Delay.	<100 µs
Noise Reducer Delay	<1 frame (Normal) <3 lines (Minimum Delay)
Total Minimum Delay	<7 lines
Total Maximum Delay	>4 frames (including optional video delay)

Audio Specifications

Input Impedance	>30 K Ohms, balanced, line to line >15 K Ohms line to earth (600 Ohm link selectable)
Max Input Level	+24 dBu, balanced
Frequency Response.....	+0.1/-0.25 dB, 20 Hz – 20 kHz wrt 1 kHz
THD+N.....	<-94 dB typical at -1 dBFS, 1 kHz, 22 Hz - 20 kHz, 'A' weighted, unity gain
Sampling	24 bits @ 48 kHz,
Dynamic Range	>100 dB wrt -1 dBFS, 20 Hz to 20 kHz, 'A' weighted
CMMR.....	>50 dB typical at 60 Hz
Cross Talk	< -100 dB, 20-20 kHz, +24 dBu, channel to channel
Channel Gain Mismatch.....	< ±0.2 dB
Max Output Level	0 dBFS
Output Sampling	48 kHz

Power Consumption

Module Power Consumption	13 W
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