

IQDCC00

3G/HD/SD-SDI Down and Cross Converter with Synchronizer

The IQDCC00 provides multi-format conversion for 3Gbps SDI, and HD-SDI digital video signals.

Using high quality motion adaptive de-interlacing and flexible scaling technology the IQDCC00 is a broadcast quality conversion module featuring frame synchronization, aspect ratio conversion, along with advanced audio and metadata handling to provide a highly integrated space efficient package.

To allow the module to be further tailored to system requirements a series of software options is available to provide color correction for video, and advanced audio processing features such as stereo to 5.1 upmixing and loudness processing, using industry recognised technology from Linear Acoustic.

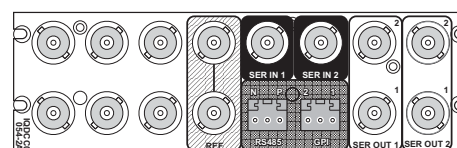
Features

- High quality Down and cross conversion for SDI video inputs
- Dual SDI inputs with auto switching on pre-defined input errors
- Frame synchronizer with HD Tri-sync / SD Bi-Level Reference Input, input loss detection and 12 frames of video delay
- Standards supported: 3G-SDI to SMPTE 424M/425M level A compatible, HD-SDI to SMPTE292M/274M/296M, SD-SDI to SMPTE259M-C
- Aspect ratio conversion including 9 preset ARC maps, up to 22 ARC memories, selectable border color and pan, tilt, size, and input crop adjustments
- Video proc. features include: gain, offset, hue, horizontal picture enhancement, RGB gamut legalization and noise reduction
- In-built test pattern generator and 2 x 16 character caption generator
- Processed and relocked signal paths allow the selected SDI input to be converted or passed through at the same format
- Processing for 16 channels of embedded audio present on the incoming SDI stream with no disturbance during video synchronizer frame wraps or drops
- Audio proc. features including: channel routing, gain, invert, fixed and tracking delays, mixing, synchronizer wrap/drop processing and eight internal tone generators
- Dolby E support – Detection of PCM/non-PCM audio to SMPTE 337/338M, pair routing and Dolby E header alignment
- Advanced audio processing options from Linear Acoustic for stereo upmixing to 5.1 surround sound and loudness level measurement and control
- 16 x user memories and 2 GPI/O ports
- Rollcall control and monitoring compatible with standard logging and reporting features
- RollTrack triggers available for detected module states including: PCM/non-PCM audio, input loss/freeze and reference loss

Why should you choose this module?

- High quality video conversion and frame synchronization allows fully flexible multi-format working and provides a future proof migration path as digital workflows evolve
- Comprehensive audio processing functions allow complete control over embedded audio signals for applications where channel routing or mixing is required
- Full RollCall and SNMP compatibility allows easy integration with Snell or third party network management systems providing an all-inclusive monitoring and control solution

Order codes



IQDCC0054-2A

Down and cross converter . 2 SDI inputs, reference loop, 4 selectable main or bypassed SDI outputs, 2 GPI/Os

IQDCC0054-2A3

Includes 3G-SDI functionality

IQDCC00-3G Software upgrade for 3G-SDI operation

Software Options

IQOPTA-LOUD51 Software option to add Linear Accoustic AeroMax 5.1 loudness processing

IQOPTA-LOUDA2 Software option to add first channel of Linear Accoustic AeroMax 2.0 loudness processing

IQOPTA-LOUDB2 Software option to add second channel of Linear Accoustic AeroMax 2.0 loudness processing

IQOPTA-UPMIX Software option to add Linear Accoustic UPMAX stereo to 5.1 upmixing

IQOPTA-CC Software option to add color correction

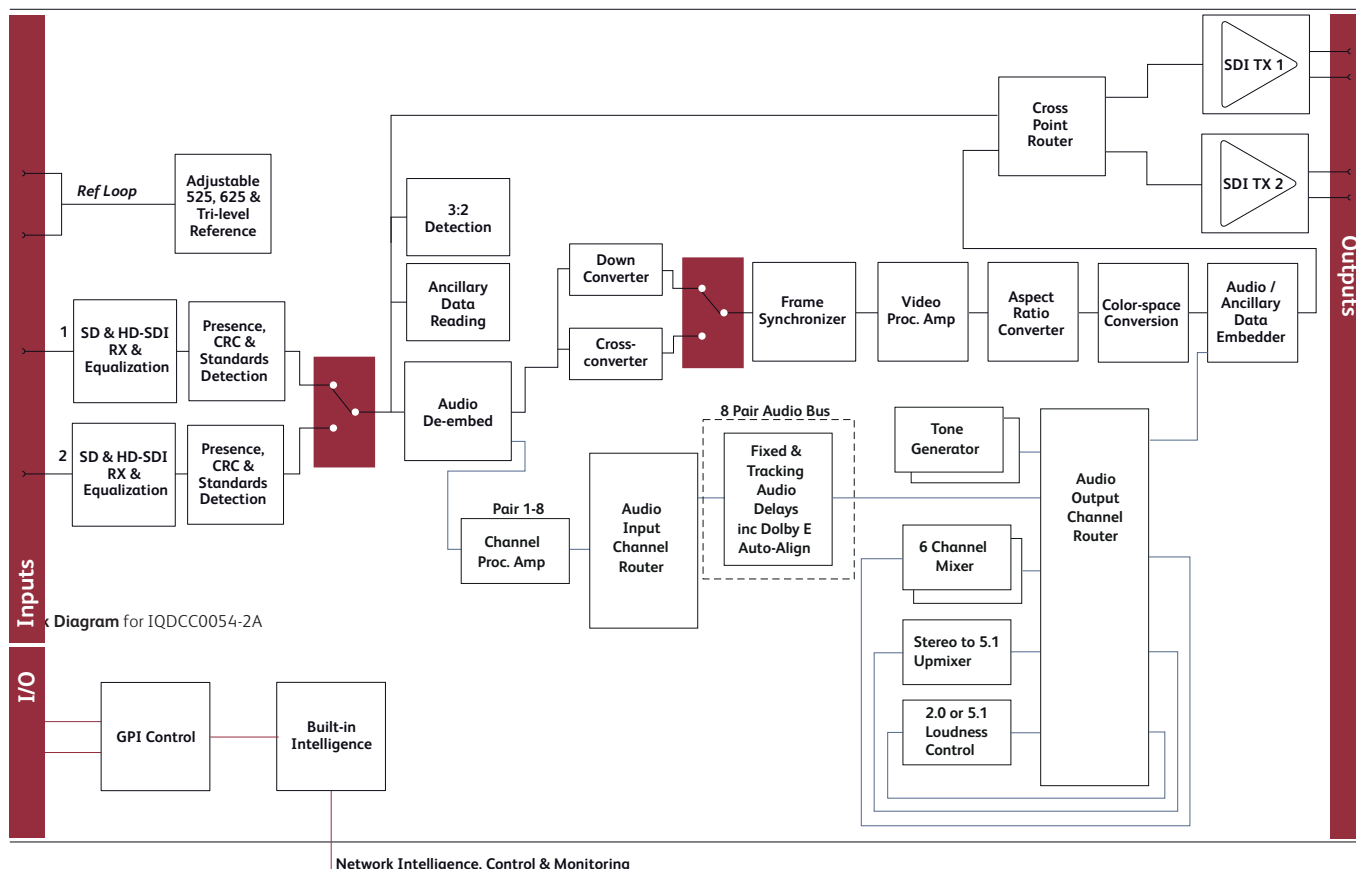
For more details on enclosure types please refer to Frames & Hardware section.

Map of input to output standards		Output							
		25		50		29.97		59.94	
		576i	1080i	720P	1080P	480i	1080i	720P	1080P
Input	25	576i	✓	✗	✗	✗	✗	✗	✗
		1080i	✓	✓	✓	✓	✗	✗	✗
	50	720P	✓	✓	✓	✓	✗	✗	✗
		1080P	✓	✓	✓	✓	✗	✗	✗
29.97	480i	✗	✗	✗	✗	✓	✗	✗	
	1080i	✗	✗	✗	✗	✓	✓	✓	
59.94	720P	✗	✗	✗	✗	✓	✓	✓	
	1080P	✗	✗	✗	✗	✓	✓	✓	

Format Conversion I/O Grid

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Technical Specification

Inputs & Outputs

Video Signal Inputs

SDI Inputs	2x
Input Cable Length	Up to 80m Belden 1694A @ 3 Gbit/s Up to 180m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference with passive loop-through Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A HD Tri-level – SMPTE 240M, 274M and 296M

Video Signal Outputs

SDI Outputs x 4

Control Interface

GPI 2 x Closing contact I/O interface (ST)

Controls

Genlock & Video Delay

Genlock Mode	Free-run, Lock to Reference, Lock to input
Genlock H-Phase	± 1 H in pixel clock steps
Genlock V-Phase	± 1 F in 1 line steps
Video H-Delay	0 – 1 Line in pixel clock steps
Video V-Delay	0 – 1 Frame in 1 line steps
Video Delay Frames	0 – 12 Frames
Dolby E auto line select	Std, user select
Dolby E auto align	On/Off

Video Controls

Input Select	Input 1, Input 2
Input Backup Enable	On/Off

Priority	None, Master (input 1), Backup (input 2)
Change-over Parameters	Carrier Loss, Standard mismatch, CRC and ANC Error, Embedded audio loss
Change-over Time Delay	0s to 10s
Reversion Delay	0 to 100s
Down, Cross Conversion	1080p, 1080i, 720p, SD
Default Video Output Type	Pattern, Freeze, Black
Pattern Select	100% Color Bars, 75% Color Bars, SMPTE Bars, Tartan Bars, Black, Pluge, Ramp, H Sweep, Pulse & Bar, Multi-burst
Output Routing	Processed, Relocked Bypass
Output Mode	Input, Black, Freeze, Pattern
Colorimetry	Auto, None, Rec601, BT709
H Enhance Frequency	Off, Low, Medium, High
H Enhance Presets	Low, Medium, High, Super, Custom
Borders	R/G/B 0-255 in steps of 1
Border Adjust	Left, Right, Top, Bottom
RGB Legalizer	700 mV, 721 mV, 735 mV, 746 mV
Black Level	±200 mV in steps of 1 mV
Hue Adjust	±180° in steps of 1°
Master Video Gain	+6 to -120 dB
Y-Gain	+6 to -120 dB
Cb/Cr Gain	+6 to -120 dB
Caption Enable	On/Off
Edit Caption	16 characters
Caption Adjust	X-Y Size & Position

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Technical Specification cont...

Aspect Ratio Conversion

Select from 9 standard preset conversions:

- Full Frame
- Box 16:9 top > 16:9
- 4:3 box 14:9 top > 16:9
- Box 16:9 > 16:9
- Box 4:3 > 4:3
- 4:3 > box 16:9
- 16:9 > box 4:3
- 4:3 box 14:9 > 16:9
- 16:9 box 14:9 > 4:3

- Display Memories 32 User configurable ARC display memories
- Size 60% to 150% in 0.1% steps.
- Aspect 60% to 200% in 0.1% steps.
- Pan / Tilt ±75% in 0.1% steps
- Input crop Left / Right / Top / Bottom

Audio Controls

Audio In - Embedded

- Audio In-Disembed Pairs 1-8
- Channel 1 – 16 Mute On/Off
- Channel 1 – 16 Polarity Inv On/Off
- Channel 1 – 16 Gain +12 dB to -80 dB in 0.1 dB steps
- Pair 1 – 8 Stereo Link channel pairs

Audio Out - Embedded

- Group 1 -4 Enable On/Off
- Audio Out-embed Pairs 1-8
- Channel 1 – 16 Mute On/Off
- Channel 1 – 16 Gain +12 dB to -80 dB in 0.1 dB steps
- Pair 1 – 8 Stereo Link channel pairs

Audio Routing

- Input routing Bus 1-8 Disembed 1-8
- Output routing embed 1-8 Bus 1-8, Mixers 1-4, Downmixer 1-2, silence, Tones 1-8

Audio Setup Controls – Bus 1-8

- Delay Add-In Bulk, RollTrack, current video On/Off
- Bulk Manual Delay -520ms to +2s in 0.17ms steps
- Coarse Manual Pair Delay ±1.995s in 1ms steps
- Fine Manual Delay ±5ms in 0.02ms steps
- Fast or smooth delay limit 5ms to 80ms
- Silence Detect -2dBFS to -128dBFS in steps of 1dB
- Signal Overload Detect -1dBFS to -127dBFS in steps of 1dB
- Warning Timer 1 to 20 seconds in steps of 1 second
- Tone Frequency 1-8 100Hz to 16kHz in 100Hz steps

Audio Mixers

- Mixer Select 1-4, Downmix 1 -2
- Source select Bus 1-8, Silence, Tones 1-8
- Source Gain 12dB to -80dB in 0.1dB steps
- Mixer 1-4 invert On/Off
- Mixer 1-4, Downmix 1-2 Mute On/Off

Company policy is one of continuous product improvement. Specifications are therefore provisional and subject to change without notice. All other trademarks mentioned herein are duly acknowledged.

Downmix Configuration LoRo, 4 level selections

Other Controls

- GPI input High/Low Select Input 1-2, Black, Freeze, Pattern, User Memories 1-16, ARC Display Memories 1-32
- GPI Level Invert High/Low
- GPI Output Source Current input OK, Input 1-2 OK, Input 1-2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1-16, No ARC Display Memories Selected, ARC Display Memories 1-32
- User Memories Save/Recall/Rename
- Memory Naming User configurable naming of Memories 1 – 16
- Information Window Video Input Status, Audio Input Status, EDH/CRC & ANC Status
- EDH/CRC Reset Resets all EDH/CRC counts
- RollTrack Index Allows up to 70 destinations
- RollTrack Sources Unused, Video Delay, Audio Delay, Input Present (1-2), Input Loss (1-2), Output Std, Input selected (1-2), Output Black, Freeze or Pattern on, Output Black, Freeze or Pattern off, Output Caption on, Output Caption off, Embedded Audio (Pairs 1-8) PCM, Embedded Audio (Pairs 1-8) Non-PCM, Embedded Audio (Pairs 1-8) Loss, Reference OK & Loss
- Factory Default Resets all module settings to factory specified default values and clears memories
- Default Settings Resets all module settings to factory specified defaults but does not clear user memories
- Restart Software reset of module
- Module Information Reports: Product Name, Software version, Serial number, Build number, KOS version, PCB version, Licensed Options
- Input Names 19 Character editable name

Specifications

- Electrical 3Gbit/s SDI, SMPTE 424M 1.5Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI
- Connector / Format BNC/ 75ohm panel jack on standard IQ connector panel
- Return loss >-15dB (270Mbit/s, 1.5Gbit/s) >-10dB (3Gbit/s)
- Output Jitter SD-SDI 0.2 UI (10Hz) / 0.2 UI (1KHz), 3G/HD-SDI 1.0 UI (10Hz) / 0.2 UI (100KHz)
- Reference Source External – HD Tri-Level / SD Bi-level / Input Video syncs
- Electrical Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A
- Connector / Format HD Tri-level – SMPTE 240M, 274M and 296M BNC/75 ohm panel jack on standard IQ connector panel
- Analog Reference Return Loss SD bi-level > 40 dB to 5.5 MHz, HD tri-level > 35 dB to 30 MHz
- Video Standards 1125(1080)/50p, 1125(1080)/59p, 750(720)/50p, 750(720)/59p, 1125(1080)/25i, 1125(1080)/29i, 625(576)/25i, 525(480)/29i
- Embedded audio handling HD - 24-bit synchronous 48 kHz to SMPTE 299M, SD - 20-bit synchronous 48 kHz to SMPTE 272M-A

Power Consumption

- Module Power Consumption 24 W Max