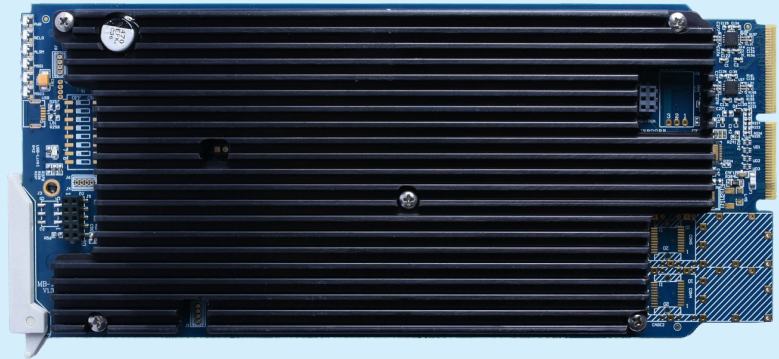


UDC-3455

3G/HD/SD Up/Down/Cross Converter
with Audio Embedder &
De-embedder

2024 Datasheet



The UDC-3455 is a broadcast quality modular up/down/cross converter that can convert video format between 3G, HD, and SD. Frame synchronization (with video timing adjustments), color correction, image enhancement, and aspect ratio conversion (with AFD support) are supported in the video processing path.

The module contains an audio crosspoint, giving the user great flexibility in selecting the source of embedded audio pairs and audio outputs. Advanced audio processing, including delay, gain, and L/R swap, can be applied to the audio sources from de-embedded audio and external AES and analog inputs.

Video pattern and audio tone generation can help users test the chain without a valid source. The module also can compensate for an input loss with black, freeze, or pattern on the output. Support of common ancillary standards and an option to use fiber I/O via an SFP module, besides mentioned features, make UDC-3455 an excellent option for most signal chains. Control and monitoring can be done using the web-based user interface, and frame front panel.

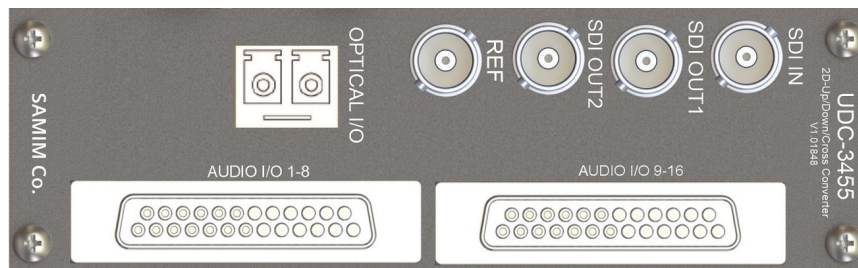
Key Features

- High quality 3G/HD/SD up/down/cross converter
- Aspect Ratio Conversion respect to AFD metadata and AFD generation
- Advanced video de-interlacing
- Frame synchronizer with tri-level or bi-level reference input
- Horizontal/Vertical timing adjustment respect to reference input
- Black, last frame, or pattern on input video loss
- Video processor: Noise removal, edge enhancer, and brightness, contrast, hue, saturation control
- Audio processor (16 pairs): Any to any input/output pair routing, gain control on each channel, Invert and mute control on each channel, swap left/right audio of each pair,

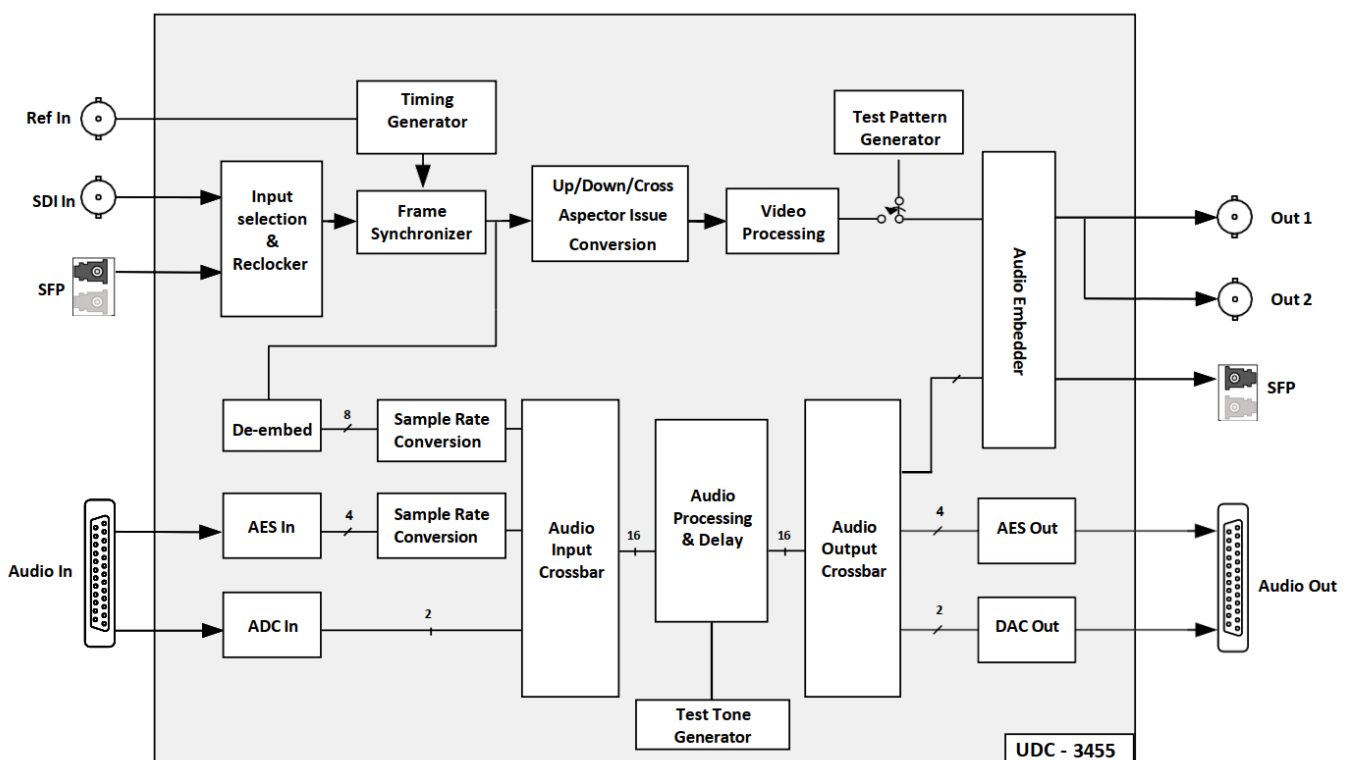
silence and overload detection

- Audio delayer (16 pairs): Up to 10 seconds for each embedded pair (1ms steps)
- Four group audio embedding and de-embedding
- Up to x4 AES inputs and x4 AES outputs
- Up to x4 analog mono audio inputs and x4 analog mono audio outputs
- Internal pattern and test tone generator
- Easy configuration via web-based user interface
- Firmware Remote Upgrade
- Optional optical I/O via an SFP
- Two identical outputs (BNC)
- Two audio I/O slots
- Ancillary data pass through and re-map (SCTE104, OP42, OP47, Time Code)

Back Panel



Block Diagram



Specifications

Digital Video Input		Digital Audio Input	
Signal type	3G/HD/SD-SDI	Signal type	Balanced, 3 pin
Standards	SMPTE 292M, SMPTE 259M, SMPTE 272M, SMPTE 299M, SMPTE 424M	Standard	AES3
Number of inputs	1	Number of inputs	4 Stereo
Connector	BNC	Connector	25 Pin D-sub
Impedance	75Ω	Impedance	110Ω
Cable length	Automatic Compensation 3G: 70m (Belden 1694A) HD: 110m (Belden 1694A) SD: 250m (Belden 1505A)	Input level	0.4-10 V
Digital Video Output		Digital Audio Output	
Signal type	3G/HD/SD-SDI	Signal type	Balanced, 3 pin
Standards	SMPTE 292M, SMPTE 259M, SMPTE 272M, SMPTE 299M, SMPTE 424M	Standard	AES3
Number of outputs	2 (duplicated)	Number of outputs	4 Stereo
Connector	BNC	Connector	25 Pin D-sub
Impedance	75Ω	Jitter	<3 ns
Voltage level	800 mv ± 10%	Sampling frequency	48 kHz
Jitter (alignment)	HD/SD: <0.2 UI 3G: <0.3 UI	THD+N	<-110dB
Rise and fall time	SD: 0.4 to 1.5 ns HD/3G : <135 ps	Carrier Level	4.4 V
Overshoot	<3% Amplitude		
DC-Offset	0 V ± 0.2 V		
Reference Signal Input		Analog Audio Output	
Signal Type	Tri-level or Black Burst	Signal type	Balanced
Number of inputs	1	Number of outputs	2 stereo (4 mono)
Connector	BNC	Connector	25 Pin D-sub
Impedance	75Ω	Impedance	<55Ω
		Maximum Voltage Level	20 dBu
		Signal to noise	101 dBu
		THD+N	<-83 dB
		Frequency response	20 Hz to 20 kHz (± 0.25 dB)
Analog Audio Input		Optical Input/Output	
Signal type	Balanced, 3 pin	Signal Type	3G/HD/SD-SDI over optical fiber
Number of Inputs	2 Stereo (4 Mono)	SFP Type	1x Non-MSA Video transceiver (Wavelength and maximum length depends on the ordered module)
Impedance	20KΩ min. (Differential)		
Connector	25 Pin D-sub		
Maximum Voltage Level	20 dBu		

Processing		
Supported data	ANC	SMPTE ST 12-2 2014 Time Code (LTC and VITC) SMPTE 2010-2008 ANSI/SCTE 104 Messages RDD8-2006 VBI Data for HD Television (OP-47) VBI Data for SD Television (OP-42) SMPTE ST 352 (Payload ID) SMPTE 2016-1 (Active Format Description)

System Requirements

Type	Product	Description
Frame	SRM-0645	1RU Frame with Controller
	SRM-0655	3RU Frame with Controller

Ordering Information

Order Code	Description	Type
UDC-3455	3G/HD/SD-SDI Up/Down/Cross Converter with Audio Embedder and De-embedder Main Board	Main Board
UDC-3455-3DRP	Back-panel for UDC-3455 (compatible with SRM-0655)	Back panel
UDC-3455-1DRP	Back-panel for UDC-3455 (compatible with SRM-0645)	Back panel
MOD-APP-DAI4O4	4-Channel Digital Stereo Audio Input + 4-Channel Digital Stereo Audio Output Module	Option for Audio I/O Slot #1
MOD-APP-AAI4O4	4-Channel Analog Mono Audio Input + 4-Channel Analog Mono Output Module	Option for Audio I/O Slot #2
SSV3G-STR-C10K	Video SFP Transceiver, 270M~2.97Gbps, 10km, TX 1310nm, RX 1260~1620nm	Accessory

With over two decades of extensive experience in the broadcast and media industry, Samim Group has emerged as a rapidly growing manufacturer and developer of professional-grade hardware and software solutions that cater to Broadcast Production Infrastructure, Intercom Systems, and Media Business Automation. We remain attuned to the latest technological advancements, ensuring we deliver high-standard solutions and products that can be marketed globally.

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