

## AVC\* Encoder

# Model D9054 HDTV Advanced Compression Encoder

## Description

The MPEG-4\* part 10 (H.264/AVC) Encoder Model D9054 is the right choice for any operator who wants to compress high-definition video using MPEG-4 compression technology.



PreSightPlus™ pre-analysis, dual-pass technology and single-slice architecture, efficiently utilizes the scarce bandwidth resources in distribution systems and provides excellent picture quality. Supporting both 1080i and 720p, the encoder offers AVC encoding in various distribution and contribution applications.

Based on a dedicated encoder resource, the D9054 Encoder optionally supports picture-in-picture (PIP) functionality for convenient channel change and mosaic applications.

The HDTV Encoder will support multiple audio formats, providing excellent flexibility. It will support up to two stereo pairs of either MPEG-1 Layer II audio, Dolby® Digital (AC-3) 2.0 audio, AAC audio, or AACv1 audio with a broad range of bit rates, and will support passthrough of externally encoded Dolby 5.1 audio.

## Features

- Up to 20 Mbit/s MPEG-4 part 10 MP@L4 video compression rate
- PreSightPlus Pre-analysis
- Single slice HD AVC encoder
- Closed Captioning support via SMPTE 334M
- HD-SDI embedded audio support
- 1080i and 720p support
- Dual power supply
- Four MPEG audio channels
- Dolby Digital or AAC audio passthrough support
- Dolby E/Linear audio passthrough support
- ASI and Dual IP outputs (10/100 Base-T)
- Multi service streaming IP output
- Dedicated Ethernet 10/100 Base-T interface for management and maintenance
- WEB based GUI
- SNMP management interface for interfacing to any SNMP-based Management System including ROSA Network Management System

## Options

- Integrated picture-in-picture (PIP) functionality with dedicated encoder
- Four Dolby Digital audio channels
- Four AAC or AACplusV1 (HE-AAC) audio channels
- ROSA driver
- High Profile - up to 25 Mbit/s

\* See the AVC/MPEG-4/H.264 product license notice on the last page.

## Specifications

Version 2.3

Feature	Description
HD-SDI input	SMPTE 292M
Systems	1080i@29.97 Hz, 1080i@25 Hz, 720p@59.94 Hz, 720p@50 Hz
Impedance	75Ω unbalanced
Input level	800 mVpp nominal
Return loss	15 dB, 5 to 1.4 GHz
Connector	BNC
Bit rate	1.485 Gb/s 10 ppm
Jitter acceptance	According to SMPTE RP184
Aspect Ratio	4:3, 16:9
Audio	
Inputs	Digital AES/EBU and embedded
Connector	BNC
Number of channels	Four mono Dolby Digital channels
Embedded Audio	
Format	SMPTE 299M
Sample frequency	48 kHz (locked to video)
Resolution	20 bits
VBI Data Processing	
Closed Captioning	SMPTE 334M embedded in HD-SDI
Transmission format	EIA 708 and 608
Video and Audio Processing	
Video	
Encoding	MPEG-4* Part 10 Main Profile @ Level 4
Approach	Single slice
Chroma format	4:2:0
Encoding rate	4:2:0 VBR - 3 to 20 Mb/s for 720p and 1080i @ Main Profile VBR - 3 to 25 Mb/s for 720p and 1080i @ High Profile
Modes	Capped VBR
Inverse Telecine	3:2 pulldown inversion
H Resolutions	1080: 1920, 1440, 1280 720p: 1280, 960, 640
V Resolutions	1080, 720

# Model D9054 HDTV Encoder

## Specifications, *continued*

Version 2.3

Feature	Description
<b>Video and Audio Processing</b>	
Picture in Picture	
Encoding format	H.264 Main Profile and optionally, High Profile
Picture size	192 x 192, 128 x 96
Bit rate	200 to 500 kb/s
<b>Video Pre-processing</b>	
PreSight™ filtering	Spatial filtering
<b>Audio</b>	
Encoding	MPEG-1 Layer II, Dolby Digital (AC-3), AAC, AACv1
Passthrough	Dolby Digital (AC-3), AAC, Dolby E, and linear audio
Encoding rates, Layer II	32, 48, 56, 64, 80, 112, 128, 160, 192, 224, 256, 320 and 384 kb/s
Encoding rates, Dolby Digital	56, 64, 80, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640 kb/s
Passthrough rates, Dolby Digital	56, 64, 80, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640 kb/s
Passthrough rates, AAC	14 - 320 kb/s
Passthrough rates and word lengths, Linear audio	1920 (@ 16-bit samples, 48 kHz sample rate) 2304 (@ 20-bit samples, 48 kHz sample rate) 2688 (@ 24-bit samples, 48 kHz sample rate)
Passthrough rates and word lengths, Dolby E	1920 (@ 16-bit samples, 48 kHz sample rate) 2304 (@ 20-bit samples, 48 kHz sample rate)
Encoding rates, AAC	Variable, 14 to 320 kb/s
Encoding rates, AACv1	Variable, 14 to 320 kb/s
Sample rates	32, 44.1 and 48 kHz
Layer II encoding modes	Dual Mono 1+1, Single Mono Left and/or Single Mono Right, Stereo 2/0, Joint Stereo
Dolby Digital encoding modes	Center 1/0, Stereo 2/0, Dual Mono 1+1
AAC and AACv1 encoding modes	Dual Mono 1+1, Single Mono 1/0, Stereo 2/0, Joint Stereo 2/0, and Mono 1/0 LR
<b>Transport Output</b>	
Output format	DVB-ASI
Number of outputs	Two + one monitor output
Connector	BNC
Impedance	75Ω
Return loss	17 dB, 27 to 270 MHz
TS rate	1 to 120 Mb/s 100 ppm
TS packet length	188 bytes, 204 RS Off
ASI bit rate	270 Mb/s
Output level	800 mVpp nominal

# Model D9054 HDTV Encoder

## Specifications, *continued*

Version 2.3

Feature	Description
IP TS Output	
Number of outputs	Two
Type	Eight-pin RJ-45, MDI
Ethernet Type	100 Base-T
Format	UDP/IP
IP address format	Multicast, unicast
TS streaming	Multiple SPTS streams
TS bit rate	Follows the ASI output rate
TS packet length	188 bytes, 204 RS On, 204 RS Off
ToS	Quality of service in streaming IP output
Environment/Physical	
Dimensions	3.5 in. H x 17.6 in. W x 21 in. D (8.9 cm H x 44.7 cm W x 53.3 cm D), 2U high, 19 in. rack mountable
Operating Temperature	0 C to +40 C (32 F to 104 F)
Storage temperature range	-10 C to +70 C (14 F to 158 F)
Weight	9.5 kg / 21 lbs.
Relative humidity	0 to 95%, non-condensing
Cooling	Forced cooling with air inlets on front panel, air exit at rear
Power Requirements	
Voltage range	100 to 240 V ac nominal $\pm 10\%$
Line frequency	47 to 63 Hz
Consumption	500 W

## D9054 HDTV Advanced Compression Encoder Rear Panel



## Ordering Information

Base Units	Order Number
D9054 – MPEG-4 HD, Dual AC PSU, 2 stereo audio LII audio, CC, ASI/IP out. No PIP option.	4012577.800 <sup>1</sup>
D9054 – MPEG-4 HD, Dual AC PSU, 2 stereo audio LII audio, CC, ASI/IP out. Upgradeable to PIP.	4012577.600 <sup>1</sup>
<b>Options</b>	
Picture in picture (PIP)	4012577.002
HE-AAC Stereo Internal encoding, four channels	4012577.004
Dolby Digital (AC-3) 2.0 encoding, Channel 1 and 2	4012577.001
High Profile	4012577.010
North American power cord	3993138
European power cord	700788
UK power cord	3993131
Australian power cord	180178
Argentina power cord	207340
Italy power cord	3993130
Japanese power cord	3993133
ROSA Driver	7009171

<sup>1</sup> When ordering, choose the power cord from the table above to ensure the correct power cord is provided with your product.

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