

mediaHUB-HD 422

Multi-CODEC High Definition Encoder MPEG 2 & MPEG 4 AVC



Offering the highest-quality and most flexible encoding features of Adtec's seasoned encoder line-up, the mediaHUB-HD 422 is a High and Standard Definition multi-CODEC work-horse. With the ability to encode **any combination of HD or SD, MPEG 2 or MPEG 4 AVC with 4:2:0 or 4:2:2 color space**, the mediaHUB-HD 422 supports past, present and future requirements.

With support for 40 encoding profiles and auto-detection capability for resolution and frame rate, this product can hit the ground running regardless of your application...

Contribution, Distribution or Studio Encoding!

Its rugged design and standard LCD front panel for status and configuration makes it ideal for mobile contribution applications while the on-board web-based control application offers ease of use for distribution and studio encoding.

This all-in-one rack mountable unit is designed with standards compliance in mind and can easily be integrated with other leading broadcast gear.

Contribution Applications: The Adtec mediaHUB-HD 422 supports a comprehensive array of video encoding profiles with BISS encryption. A highly robust single channel per carrier (SCPC) DVB compliant MPEG 2 Transport Stream is output via ASI and GIGE concurrently.

For multiplexing many services or channels per carrier (MCPC), Adtec's DTA-3050 is the perfect companion product. The DTA provides 10 ASI inputs for flexibility and high performance throughput with exceptionally low jitter. It remaps PIDs, adds and drops services, enables DVB-CSA encryption, builds DVB Tables, and adds the ability to operate encoders and DTA's fully redundant.

Distribution Applications: Distribute the highest quality MPEG 2 and MPEG 4 AVC Digital Television sound and pictures 24 x 7 x 365 with the mediaHUB-HD 422. The mediaHUB-HD 422 supports ATSC, DVB, MPEG, and IPTV platforms delivering a pristine MPEG 2 transport stream including broadcast quality Video, Audio with excellent lip sync, Closed Captions, Teletext, and static ATSC and DVB service information. Add the DTA-3050 as for multiplexing and fully dynamic ATSC and DVB service information applications.

Studio Applications: Frame accurately capture video and four pairs of stereo audio with the mediaHUB-HD 422. The standard Sony 9-PIN interface operates in Controller and Recorder mode allowing it to control a tape device or be controlled by a non-linear editor (NLE). Encode in real-time with the Recorder mode directly from an NLE time line directly to file. Create High and Standard Definition Cable Labs compliant MPEG 2 transport streams with the mediaHUB-HD 422, ideal for VOD and DPI content creation.

feature highlights

Video:

The mediaHUB-HD 422 supports a wide range of encoding profiles via SDI and composite.

MPEG 2

MP@ML, 422P@ML, MP@HL, 422P@HL

MPEG 4 AVC

MP@L3.0, MP@L3.1, MP@L3.2, HP@L4.0, HP@L4.1

SDI Video:

Video per SMPTE 292M for High Definition and SMPTE 259M for Standard Definition.

Audio:

Audio Encoding available via AES, Analog and SDI.

Four AES3 digital audio inputs:

Inputs 1 - 4 support MPEG 1 Layer 2 encoding. Inputs 1 - 2 support Dolby Digital encoding and passthrough from external Dolby E/5.1.

SDI Audio: (8 channels)

Audio per SMPTE 299M for High Definition and SMPTE 272M for Standard Definition.

Analog Audio:

2 stereo pairs

Transport:

MPEG 2 Transport Stream via ASI and GigE supporting UDP / RTP / SMPTE 2022.

SDI Plug and Encode: Automatic SDI detection (HD and SD) of standards and frame rate.

Configuration and Monitoring: Rapidly and accurately configure and monitor the mediaHUB-HD 422 via the front panel or on-board web application and SNMP.

Highest quality HD and SD: When it comes to the best on-air look, mediaHUB-HD 422 delivers with excellent quality High and Standard Definition video encoding using MPEG 2 and MPEG 4 AVC.

Decode While Encode (DWE): Built-in confidence decoder nearly eliminates the need for external local decoders.

* Decryption and some encoder profiles not supported.



Encoder.....

ASI OUT	75 Ohm source ASI x3 per EN500083-9
CVBS In	75 Ohm terminated NTSC or PAL D1 Composite Video Input
SDI In	75 Ohm terminated Input, Video & Audio (SMPTE 259M for SD & SMPTE 292M for HD) BNC
SDI Out	75 Ohm re-clocked source matched to Input Signal
RS422	Sony 9-pin electrical and protocol tape deck interface. Controller and Recoder Modes
GPIO	Tally and Control Port
AES Audio In 1 - 4	75 Ohm AES-3 per AES3-2003
AES Audio Out 1 - 2	Compressed Dolby Bit Stream Out
Analog Audio In	Stereo Pairs 1 and 2 - 600 Ohm Balanced.

Processor

COM2	API Serial Communication Interface
COM1	Serial Port Used for Troubleshooting (Terminal)
Ethernet	Fast Ethernet Interface
USB 2.0	Not Currently Supported

Power

Power	AC Power - Standard 3 pin plug 70-240 VAC 50 - 60 Hz
--------------	---

Confidence Decode

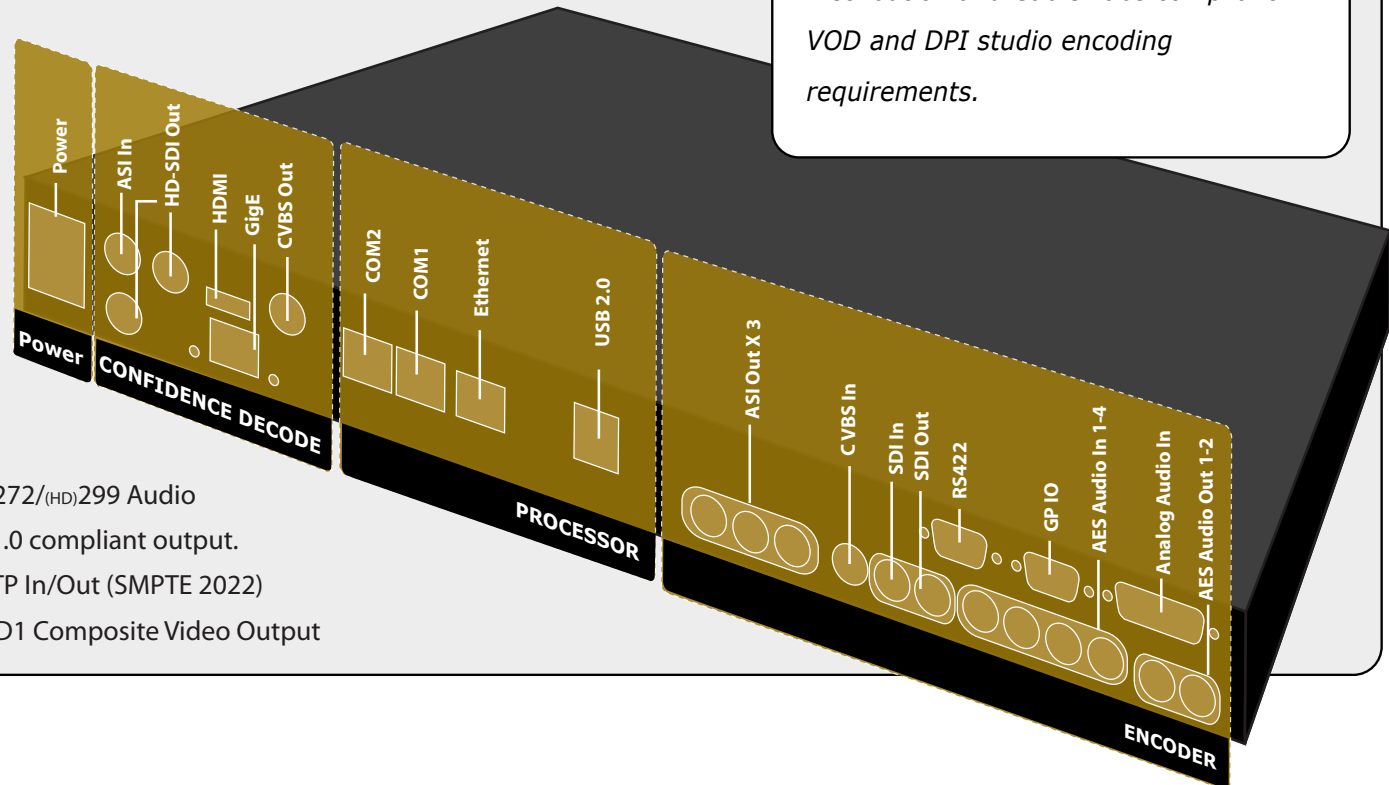
ASI IN	Asynchronous Serial Interface per EN500083-9 BNC 75 Ohm.
HD/SD SDI Out	User Defined (D1-1080i). SMPTE (SD)259/(HD)292 Video & (SD)272/(HD)299 Audio
HDMI	HDMI v1.3, HDCP v1.2, and DVI v1.0 compliant output.
GigE	MPEG 2 Transport Stream UDP/RTP In/Out (SMPTE 2022)
CVBS Out	75 Ohm terminated NTSC or PAL D1 Composite Video Output

mediaHUB-HD 422

Multi-CODEC High Definition Encoder
MPEG 2 & MPEG 4 AVC

Contribution
Distribution
Studio Encoding

Built to Run - The mediaHUB-HD 422 is designed to support the most demanding Contribution, ATSC, DVB and IPTV Distribution and Cable Labs compliant VOD and DPI studio encoding requirements.



mediaHUB-HD 422 Technical Specifications

Standard Definition Video Frame Rates

480i, 576i

Standard Definition Video Resolutions

720x480, 720x576

High Definition Video Frame Rates

720p24, 720p50, 720p59.94(60), 1080p24, 1080i50, 1080i59.94, 1080i60

High Definition Video Resolutions

1920x1080, 1280x720

Encoder Video Profiles and Levels

MPEG 2

MP@ML, 422P@ML, MP@HL, 422P@HL
(Supports 420 and 422 for all resolutions)
Data rates from 1 Mbs to 120 Mbs

MPEG 4 Part 10 Advanced Video Coding (AVC)

Commonly referred to as MPEG 4 AVC
MP@L3.0, MP@L3.1, MP@L3.2, HP@L4.0, HP@L4.1
(Supports 420 and 422* for all resolutions)
Data rates from 500 kbs to 80 Mbs

Encoder Video Input

Standard Definition Video Inputs (Encoder)

Analog NTSC and PAL Composite (BNC)
SDI (SMPTE 259M) with embedded audio (SMPTE 272M)
- Auto detect SD 270Mbps for SD
- D1 Encoding Only - no internal up-conversion.

High Definition Video Inputs (Encoder)

SDI (SMPTE 292M) with embedded audio (SMPTE 299M)
- Auto detect HD 1.485 Gbs.
3G-SDI input video, (SMPTE 424M) w/embedded audio (SMPTE 299M)

* SDI and HD-SDI are the same connector with auto standard resolution and frame rate detection.

Encoder Audio Profiles

Dolby Digital 2.0 (AC3) Two (2) stereo encoders included
MPEG1 Layer 2 Four (4) stereo encoders included
Dolby E, Dolby 5.1 and Dolby Digital 2.0 (AC3) passthrough on AES3 1, 2

Encoder Audio Inputs

Analog audio input on DB15 male.

AES3- 1 & 2 digital audio input uncompressed (PCM) or compressed bit stream passthrough from external Dolby 2.0, 5.1 or Dolby E encoders (BNC - 75 Ohm). Includes compressed bit stream output.

AES3- 3 & 4 digital audio input uncompressed (PCM) in - MPEG 1 Layer 2 encoding only.

SDI embedded (8 channels) with video per SMPTE 272M for SD and SMPTE 299M for HD. User selectable group 1-4.

User-defined analog and digital level control with sample rate conversion on all four AES3, analog and embedded SDI audio inputs

Interlace Coding

MPEG2 and MPEG 4 AVC

Field
Frame
Adaptive

GOP SIZE

1-30

Motion Estimation and Precision

Search Range
Horizontal: -169.75 to +155.75 pixel
Vertical: -87.5 to + 115.75 pixel

Pixel Precision for Compensation

MPEG 4 AVC: 1/2, 1/4 Pixel
MPEG2: 1/2 Pixel

Block Size for Compensation

MPEG2: 16 X 16, 16 X 8 MC
MPEG 4 AVC: 16 X 16, 16 X 8, 8 X 16, 8 X 8, 4 X 4

Video Pre-Processing Encoder Filters (SD Only)

Temporal & Spatial (Median)
Time Base Corrector (TBC) on SDI inputs for SD only
Chroma filtering and scaling for NTSC/PAL

Transport Outputs

ISO13818-1 MPEG 2 Transport Stream (188 byte only)
(x3 mirrored outputs)
MPEG 2 Transport via GIGE (UDP or RTP) SMPTE 2022 (COP3 FEC)
MPEG 2 Transport to local storage or NAS (both optional)
ASI, IP and storage if fitted operate concurrently

Transport User Data

SMPTE 334 VANC data extraction for IEEE 708/608. Concurrent
User defined VANC Line 7-32 data extraction supported
Teletext: (NABTS) DVS053 Rev 6

Conditional Access

BISS 1/E

Table Compliance

MPEG Program Specific Information (PSI) Table Compliance:
PAT
CAT
PMT
SCTE 35 Splice Point injection

DVB Service Information (SI) Table Compliance (Static)

SDT
NIT
EIT
TDT/TOT

For dynamic DVB-SI use Adtec's DTA-3050 multiplexer and DTVManage SI Server in combination with DTVGuide web hosted program information service.

ATSC A65B (PSIP) Table compliance (Static)

MGT (TVCT, EIT0-3) - Terrestrial
MGT (CVCT, EIT0-3) - Cable
STT
RRT

For dynamic A65B PSIP use Adtec's DTA-3050/3051 (SMPTE 310) multiplexer and DTVGuide web hosted program information service.

Confidence Decoder Video Output

SD/HD SDI SMPTE 259M (SD) and SMPTE 292M (HD)
User definable or auto resolution from D1 to 1080i including scaler for Up and Down conversion

Composite D1 Video (NTSC/PAL)

Not concurrent with HD HDMI with HDCP and Audio

Confidence Decoder ASI Input

DVB-ASI Input for external SPTS or MPTS decoding
No Conditional Access support on confidence decoder

Confidence Decoder Audio Output

SDI Embedded audio stereo audio pair SMPTE 272M (SD)
SMPTE 299M (HD)
HDMI
* No analog audio output

Confidence Decoder Video Profiles and Levels

MPEG 2

MP@ML, 422P@ML, MP@HL
(Supports 420 for ALL resolutions and 422 for SD only)
Data rates from 1 Mbs to 60 Mbs

MPEG 4 Part 10 Advanced Video Coding (AVC)

MP@L3.0, MP@L3.1, MP@L3.2, HP@L4.0, HP@L4.1
(Supports 420 ONLY)
Data rates from 500 kbs to 30 Mbs

Confidence Decoder Audio Profiles

Dolby Digital AC-3, Dolby 5.1 down mix to stereo, MPEG 1 and MPEG 2 Layer 2, AAC-LC MPEG-2 and MPEG-4:(max 384kbps)
*NO Dolby E support

Physical

1 RU chassis (19 x 14 x 1.75 in) (482.6 X 355.6 X 44.45 mm)
9 lbs (4kg)

Power

70-240 VAC 50 - 60 Hz
Start-up:72 Watts
Operational: 60 Watts

Front Panel

LCD display with button driven configuration menus
LED status indicators

User Interface

Included Web application server with Bonjour enabled auto-find. Usable with standard web browser (IE, Firefox, Opera, Safari)
SNMP MIB II, Private, Traps