

# 3480 Media Exchange Platform: The Multiple Service Platform

High Density, High Video Quality Professional Encoder



Built on modern technology and leveraging years of experience in 1-RU and modular real-time compression and video technology, the 3480 encoder series takes video quality in H.264 and MPEG-2 compression to a whole new level with no compromises on video quality and density.

The 3480 encoder series is built on a highly flexible platform that allows the core video processing engine to change in a factory-installed modular fashion to maintain your investment well into the future. Hybrid hardware/software architecture is used to optimize flexibility and performance and density.

The 3480 encoder platform is flexible enough to house both HD and SD with SDI inputs, as well as H.264 and MPEG-2 video codecs, alongside a wide array of audio processing technologies and codecs, including integrated IntelliGain real-time loudness measurement and correction technology. Channel configurations include up to four SD (in either H.264 or MPEG-2), and up to four HD signals (720p or 1080i, or a mix). When coupled with the 3480 STC (stat mux controller), the 3480 encoder channels participate in real-time stat mux pools, both in MPEG-2 and H.264 to produce variable bitrate streams.

#### Typical Applications:

- Terrestrial ATSC: Up to Multi Transmitter in a box. Internal, External MPEG2 SD, HD Statistical Multiplexing, ATSC Table Insertion, Audio conding control & high video quality
- IPTV, multicast to the home, typically utilizing H.264 codecs with constant bit rate (CBR) or capped variable bit rate (VBR) and IP multicast networks. Includes Picture in Picture (PIP) generation as a software option
- DTH Satellite with stat muxed streams, including hybrid SD/HD, MPEG-2/H.264 stat mux pools
- Cable IPTV over broadband, bonded RF carriers. Typically H.264 multicast, and stat muxed.
- Cable or Satellite DTH networks with MPEG-2 delivery to a mixed population of legacy set top boxes and modern ones

#### ► Features & Benefits

- High video quality enabled by advanced filtering, compression tools, and stat mux algorithms
- High density with four SD's or four HD's per 1RU device
- Works in conjunction with the Evertz® IP-based stat mux controller for variable bitrate (VBR) stream generation to maximize video quality within constrained bandwidth delivery networks. Includes stream prioritization to reflect business requirements.
- High availability with N+M service-level redundancy support via the proven VistaLINK® network management system from Evertz®
- Enhanced Table insertion: External or Internal, Spooling or Injection, ATSC PSIP, DVB PSI, DVB SI.
- Ad insertion support with SCTE-104 to SCTE-35 conversion

The Complete Solution Provider



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### Specifications

#### SDI Inputs:

Number of Inputs: 4  
 Connector: Mini-DIN  
 Standards: SMPTE ST 259 (SD-SDI) or SMPTE ST 292-1 (HD-SDI)  
 Impedance: 75Ω unbalanced  
 Input level: 800 mVpp nominal  
 Return loss: >= 15 dB, 5 to 1.4 GHz  
 Systems: 1080i, 720p, SD (525, 625)  
 Audio: Embedded (SMPTE ST 299-1), up to 4 groups (16 channels), PCM or Dolby® Digital or E. 48kHz sample frequency, 20-bit resolution

#### Audio/Video Processing:

Video: Skin tone detection  
 Adaptive GOP, driven by scene change detection  
 Motion Compensated Temporal Filter (MCTF)  
 Input deblocking filter  
 Skin tone detection  
 Scene change detection  
 Fade detection  
 Frame synchronization, built-in (contact Evertz®)  
 Audio: Evertz IntelliGain® loudness control for ITU-1770-based measurement and correction as per ATSC A/85 and EBU R128 standards (contact Evertz®)

#### Video Output Formats:

Encoding: H.264 full resolution: Main / High, up to Level 4.1 (SD and HD)  
 H.264 PIP: Baseline / Main, Up to Level 2.0  
 MPEG-2: Main Profile @ Main Level (SD), Main Profile @ High Level (HD)  
 Resolutions/Scan: 1920 / 1440 / 1280 x 1080i 25 / 29.97  
 1280 / 960 / 640 x 720p 50 / 59.94  
 720 / 704 / 640 / 544 / 528 / 480 / 352 x 480i 29.97 / 576i 25  
 PIP: 416x240, 352x288, 352x240, 192x192, 128x128, 128x96, 96x96  
 Aspect Ratio: 4:3, 16:9  
 AFD and WSS signaling  
 Bitrate Range: Full resolution: 1 – 30 Mbps  
 PIP: 200 – 1000 kbps  
 Chroma: 4:2:0 (H.264 and MPEG-2)  
 4:2:2 (MPEG-2)  
 Bitrate Control: CBR  
 Capped VBR  
 Target VBR  
 Stat Mux VBR (IP based closed loop statistical multiplexing control via control port)

#### Audio Output Formats:

Encoding Support: (Bitrate Range)  
 AAC-LC (64kbps - 640kbps), 1+1, 1/0, 2/0, 3/0, 2/1, 3/1, 2/2, 3/2  
 HE-AAC v1/v2 (32kbps - 256kbps), 1/0 (C), 2/0 (L, R), 2/0 PS (C), 2/1 (L, R, S), 3/0 (L, R, C), 2/2 (L, R, Ls, Rs), 3/1 (L, R, C, S), 3/2 (L, R, C, Ls, Rs), 3/2L (L, R, C, Ls, Rs, LFE)  
 MPEG-1 Layer II, mono, stereo  
 Dolby® Digital (AC-3) (96kbps - 640kbps), 1+1, 1/0, 2/0, 3/0, 2/1, 3/1, 2/2, 3/2  
 Dolby® E encoder, various modes  
 Dolby® Pulse (AAC-based), 1/0 (C), 2/0 (L, R), 2/0 PS (C), 2/1 (L, R, S), 3/0 (L, R, C), 2/2 (L, R, Ls, Rs), 3/1 (L, R, C, S), 3/2 (L, R, C, Ls, Rs), 3/2L (L, R, C, Ls, Rs, LFE)  
 Dolby® Digital Plus (upcoming, contact Evertz®)  
 Sampling: 48 kHz (contact Evertz® for additional rates)  
 Passthrough: Dolby® Digital (AC-3)  
 Dolby® E encoder  
 PCM

#### System, Ancillary:

DPI: SCTE-104 via VBI  
 Generation: SCTE-35  
 VANC: CEA 608 from Line 21  
 SMPTE 334-1 Closed Captions (SCTE-20, SCTE-21, SCTE-128??), CEA 708  
 SMPTE 2016-3 AFD and Bar Data  
 SMPTE 2031 Teletext  
 OP47 Teletext subtitles

#### Output:

Ethernet Protocol: Gigabit Ethernet 802.3z  
 IP Ports: 2 independent ports  
 Connector: RJ-45  
 Forward Error Correction: As per SMPTE-2022  
 IP Encapsulation: MPEG TS over UDP/IP/Ethernet  
 7 TS packets per IP datagram  
 Transport Stream: Compliant MPEG2 TS  
 ATSC PSIP Spooling: PAT, PMT, MGT, TVCT and more  
 ATSC PSIP Injection: Integrated with 3rd party Table Spoolers  
 DVB SI, PSI Table Spooling: PAT, PMT, SDT, NIT

#### Management & Control:

Local: Fully featured front panel control  
 Protocol: SNMP, MIBs available  
 Application: VistaLINK® network management system or stand-alone application (Windows)

#### Electrical:

Input voltage range: 100 – 264VAC  
 Line frequency: 47 – 63 Hz  
 Power supplies: Dual, load sharing  
 Power consumption: <= 500W

#### Physical:

Dimensions: 1.75"H x 19"W x 29 ¾"D  
 Weight: 12.32 kg/36lbs

#### Environmental:

Cooling: Front to rear and rear-side  
 Operating Temp.: 50° F (10° C) – 104° F (40° C)  
 Store temp.: -40° F (-40° C) – 158° F (70° C)  
 Operating relative humidity: 8% to 90% non-condensing  
 Non-operative humidity: 5% to 95% non-condensing  
 Electromagnetic compliance: FCC Part15 Class A, CE Mark (EN 55022 Class A)  
 UL, CUL Canada EN 60950/IEC, 60950-compliant, TUV Germany, ROHS 5/6 – Directive 2002/EC  
 Safety:



### Ordering Information

3480ENC Series 8 HD, 16 SD Encoder Series

For complete list of models please contact Evertz.