MODEL 6840R
MULTI-CHANNEL H.264 HD/SD VIDEO ENCODER

TECHNICAL SPECIFICATIONS

FEATURES

- Real-time digital transmission of High/Standard Definition motion imagery
- H.264/MPEG-4 AVC (Part 10) Baseline (Optional MPEG-2 for SD applications)
- HD/SD-SDI & Composite Input Interface
- 1080p/1080i/720p/480i/p
- MPEG-2 Transport Stream - MISB/STANAG Compliant
- Fully configurable 1000 BaseT network interface (Optional Redundancy)
- Synchronous Metadata Support for SDI and Asynchronous metadata support via serial or Ethernet (optional on-board KLV Encoding)
- Data Rates from 256Kbps to 20Mbps (per channel)
- <30 ms Encode Latency
- Stereo/dual-channel audio inputs
- MPEG-1 Layer I/II Audio Compression
- RS-232 or Ethernet port configurable
- Rugged, Airborne Package

The Model 6840R Video Encoder is a High / Standard Definition (HD/SD) Encoder that compresses video and audio signals, multiplexing them with metadata and other system information for real-time transmission for ISR applications. The 6840R uses the H.264 (MPEG-4 AVC Part 10) video compression algorithm to provide high-quality video even at HD resolutions. The H.264 standard is the most efficient compression algorithm and was created for the transmission of high resolution video. The unit is built around an advanced, high-speed FPGA architecture, working in conjunction with a DSP, to facilitate the data moving and processing required for HD video compression.

The 6840R is easily integrated into most airborne video transmission systems. The standards-compliant (MISB/STANAG) transport stream is output on a Ethernet port (1000 BaseT) for direct connection to any network. The transport stream can be applied to Delta’s HD decoder or played through compliant exploitation systems.

The encoder’s video, audio, metadata, and system parameters are easily controlled via the Ethernet port or asynchronous serial interface.
VIDEO INPUT
- **Ports**: Four (one per channel)
- **Format**: Composite / S-video / HD-SD SDI
- **Levels**: 1 Vp-p / y=0.7; c=.03 / 0.3Vp-p; 75 Ohms
- **Connector**: BNC

VIDEO COMPRESSION
- **Algorithm**: H.264 / MPEG-4 AVC (Part 10)
- **Format**: H.264 Baseline
- **Resolutions**: 1080p / 1080i / 720p / 480i/p
- **Frame Rate**: 25 / 29.97 / 30 / 50 / 59.94 / 60
- **GOP Structure**: Inter/Intra (I/IP); Variable Size; Infinite GOP

TRANSPORT STREAM
- **Streams**: Two per channel
- **Ports**: Two 1000 BaseT Ethernet
- **Protocol**: ISO/IEC 13818-1 MPEG-2 TS-over UDP Video / Audio / Data
- **Data Rate**: 256Kbps to 20Mbps
- **Configuration**: DHCP or Static Address Selectable Ports Auto Sense Full/Half Duplex Unicast / Multicast
- **Connector**: Circular Mil

METADATA INTERFACE
- **Ports**: Three per channel
- **Protocol**: KLV / Clear
- **Format**: SDI VANC, RS-232/RS-422, Ethernet
- **Connector**: Circular Mil

CONTROL
- **Ports**: Two
- **Format**: RS-232; TCP/IP (Web, Telnet)
- **Protocol**: Delta’s 3-character mnemonics

AUDIO INPUT
- **Ports**: Four (one per channel)
- **Modes**: None, Left, Right, Stereo
- **Format**: Balanced (Line Level)
- **Levels**: 2.8 Vp-p (1Vrms)
- **Impedance**: 10K Ohms
- **Connector**: Circular MIL

AUDIO COMPRESSION
- **Algorithm**: MPEG-1 Layer I/II
- **Sample Rates**: 48Kbps
- **Sync**: Lip synchronized with video

LATENCY
- **Encoder**: <30 ms
- **Encoder/Decoder**: <100 ms

ENVIRONMENTAL / EMI (RTCA/DO-160F Test)
- **Induced Signal Susceptibility**: Section 19
- **RF Susceptibility - Conducted**: Section 20
- **RF Susceptibility - Radiated**: Section 20
- **Emission of RF Energy - Conducted**: Section 21
- **Emission of RF Energy - Radiated**: Section 21

- **Temp (Op)**: 0ºC to 50ºC (Fig. 4-2)
- **Temp (Storage)**: -55ºC to +85ºC (Fig. 4-1)
- **Humidity**: Category A-Standard Cycle 95% RH (Fig. 6-1, 2 cycles)
- **Power**: MIL-STD-704
- **Vibration Performance**: Curve B, 10 minutes: 10 Hz-2000 Hz (Fig. 8-1 (B))
- **Endurance**: Curve B1, 3 hours: 10 Hz-2000 Hz (Fig. 8-4 (B1))
- **Shock Operational**: Terminal peak sawtooth: 6g for 11 msec duration (Fig. 7-2 OP Shock)
- **Impulse Crash Safety**: Terminal peak sawtooth: 20g for 11 msec duration (Fig. 7-2 Crash Safety)
- **Crash Safety Sustained**: 9g, 3 seconds
- **Altitude**: 35K Ft (Section 4.6.1, Fig. 4.6)

POWER
- **Volts**: +28VDC
- **Watts**: 69W
- **Connector**: Circular MIL

SIZE/WEIGHT
- **Chassis**: 1.700"H x 19.120"W x 13.995"D
- **Weight**: 16 lbs.