The Model 7820R 2-Channel Encoder is an H.265 HD/SD video encoder that compresses video and audio signals, multiplexing them with metadata and other system information for real-time video transmission applications. The 7820R is capable of simultaneously encoding two channels of video with resolutions up to 1080p. Utilizing the H.265 (HEVC) video compression algorithm, the encoder provides high quality video transmission at various resolutions and a wide range of bandwidths. The H.265 compression algorithm utilizes highly bit-efficient coding to provide encoded streams at nearly half the bandwidth of its H.264 (AVC) predecessor. The unit is built on an advanced, low-power multimedia architecture that provides the horsepower for the computationally intensive H.265 algorithm, providing bandwidth efficiency for multi-channel applications. This increased efficiency allows for more channels to be transmitted over a given bandwidth, better quality video for constrained bandwidth applications, or lower bandwidth operation to extend the limits of ISR operation and reduce storage size requirements. A “Primary/Secondary” encoding feature enables a second, lower resolution, lower bit rate copy of each video input to be independently configured and streamed simultaneously for a maximum of four streams. The 7820R also provides an H.264 mode to support legacy infrastructures while providing a future growth path to H.265.

Designed for any rugged airborne, ground-mobile, or shipboard application, the 7820R is compliant with the full motion video standards developed by the US Government’s Motion Imagery Standards Board (MISB). This includes compliance with the video compression, KLV metadata, and transport stream profiles required to ensure interoperability in US and Allied processing, dissemination, and exploitation (PED) systems. Full DO-160/MIL-STD-810 environmental and MIL-STD-461 EMI qualification ensures the 7820R meets project requirements.

The 7820R is easily integrated into any FMV system, providing for legacy composite and all SDI standards. The unit provides Ethernet and synchronous serial transport interfaces along with multi-format metadata interfaces. Serial or Telnet control, and an easy to use web-GUI are provided for encoder set-up.
**MODEL 7820R**

**2-CH HD/SD H.265 VIDEO ENCODER**

### VIDEO INPUT
- **Ports:** Two independent inputs
- **Format:** SD/HD/3G-SDI (SMPTE) or Composite, Auto-detect format, resolution, frame rate
- **Levels:** .3Vp-p; 75 Ohms/1Vp-p, 75 Ohms

### VIDEO COMPRESSION
- **Algorithm:** H.265 HEVC / H.264 AVC
- **Profile:** MP, MIOP / MP, HP
- **Resolutions:** 1080p/1080i/720p/480i/576i
- **Frame Rate:** 1-60
- **GOP Structure:** Inter/Intra; Variable Size

### TRANSPORT STREAM
- **Ports:** Ethernet or RS-422
- **Protocol:** ISO/IEC 13818-1
- **Data Rate:** 128Kbps - 20Mbps
- **Ethernet Protocol:** Transport Stream over UDP, unicast or multicast
- **RS-422 Protocol:** Transport Stream over synchronous serial interface

### ETHERNET INTERFACE
- **Format:** 10/100/1000 Base T, Auto Sense Bitrate, Auto Detect Duplex
- **Configuration:** DHCP or Static Address

### METADATA INTERFACE
- **Ports:** Asynchronous serial (2), UDP (2), SDI-VANC (2)
- **Format:** KLV or unformatted data

### TIME INTERFACE
- **Ports:** 1PPS/IRIG-B, SDI-VANC
- **1PPS Levels:** 0-10Vp-p; 50 Ohms

### CONTROL
- **Ports:** Asynchronous Serial (1), Telnet, Web Browser
- **Serial Levels:** RS-232/RS-422

### AUDIO INPUT
- **Ports:** Two independent stereo inputs
- **Format:** Balanced (Line Level)
- **Levels:** 2.8Vp-p (1Vrms)
- **Impedance:** 10K Ohms

### AUDIO COMPRESSION
- **Channels:** None, Left, Right, Stereo
- **Algorithm:** MPEG-1 Layer I/II or ADPCM
- **Sample Rates:** 48Ksps

### LATENCY
- **Encoder:** <50ms (per channel)
- **Enc/Dec Tandem:** <100ms

### ENVIRONMENTAL
- **Temp/Alt (Op):** DO-160D, Section 4, Category D2 -40°C to +71°C
- **Temp/Alt (Non-Op):** DO-160D, Section 4, Category D2 -55°C to +85°C
- **Humidity:** DO-160D, Section 6, Category B 5%-95% RH, non-condensing
- **Vibration:** DO-160D, Section 8, Category S, Figure 8-3, Profile M
- **Shock:** DO-160D, Section 7, Category A, Figure 7-2, Operational (6g, 11ms, sawtooth)
- **EMI:** MIL-STD-461E CS101, CS114-116, RS103, RE102, CE-102
- **DO-160E**: Section 18, AF Conducted Susceptibility Section 21, Conducted Emissions

### POWER
- **Volts:** +28VDC
- **Watts:** 20W

### SIZE / WEIGHT
- **Chassis:** 2.5"H x 4.5"W x 7"D / 3.75 lbs.