



Tyton VS2X



Rugged H.265 Video Encoder with Four 3G-SDI or NTSC/PAL Inputs and Metadata

Tyton VS2X is a powerful HEVC/H.265 video encoding and streaming solution that is designed to serve video transmission needs in harsh field environments. With low latency encoding and low power consumption, Tyton VS2X is non-intrusive and feature rich.

Tyton VS2X is ruggedized to survive harsh environments (shock, vibration, humidity) and temperatures from -45°C to 85°C (MIL-STD-810 & IP67). It comes with dedicated mounting holes and is orientation insensitive.

Tyton VS2X encodes and streams four 3G-SDI, HD-SDI, SD-SDI, or TV (NTSC/PAL) video inputs simultaneously. Each input can be software configured and routed to any of the product's eight dynamic encoding cores for H.265 (HEVC) or H.264 encoding. The encoding parameters are highly configurable with support for high (H.264 only), baseline and main profiles, all with variable bitrate configurations (512 Kbps to 15+ Mbps).

CoT and KLV metadata insertion are supported via RS-232, VANC (embedded on SDI input) or Ethernet. CoT data can be forwarded out via a dedicated socket or converted to KLV and multiplexed into the MPEG-2 TS container. The resulting MPEG-2 TS video is then streamed out over UDP with optional RTP support headers. This standardization ensures interoperability with the decoders and displays retrieving the encoded stream.

Control of encoding settings and retrieval of Tyton VS2X health information are all performed using an API built around SNMP for simple and secure communication. This API is built for easy integration into existing customer applications. Several sample applications are provided to ensure prompt integration into a working system.

In the standard configuration, the product accepts four high definition video inputs in 3G/HD/SD-SDI, NTSC/PAL format through BNC connectors. Audio, 1Gbps Ethernet &

RS-232 are connected over a 37-pin rugged connector. To accommodate other video input formats and connector types, small modifications to the design are possible even for low volume opportunities.

EIZO Rugged Solutions, formerly Tech Source Inc, has provided graphics solutions for over 30 years. Responsiveness has been the key to our success. Product customizations or new designs can be developed in a short time to meet your needs. The product comes with our commitment of availability for up to 10 years from the date of release and product support up to 15 years.

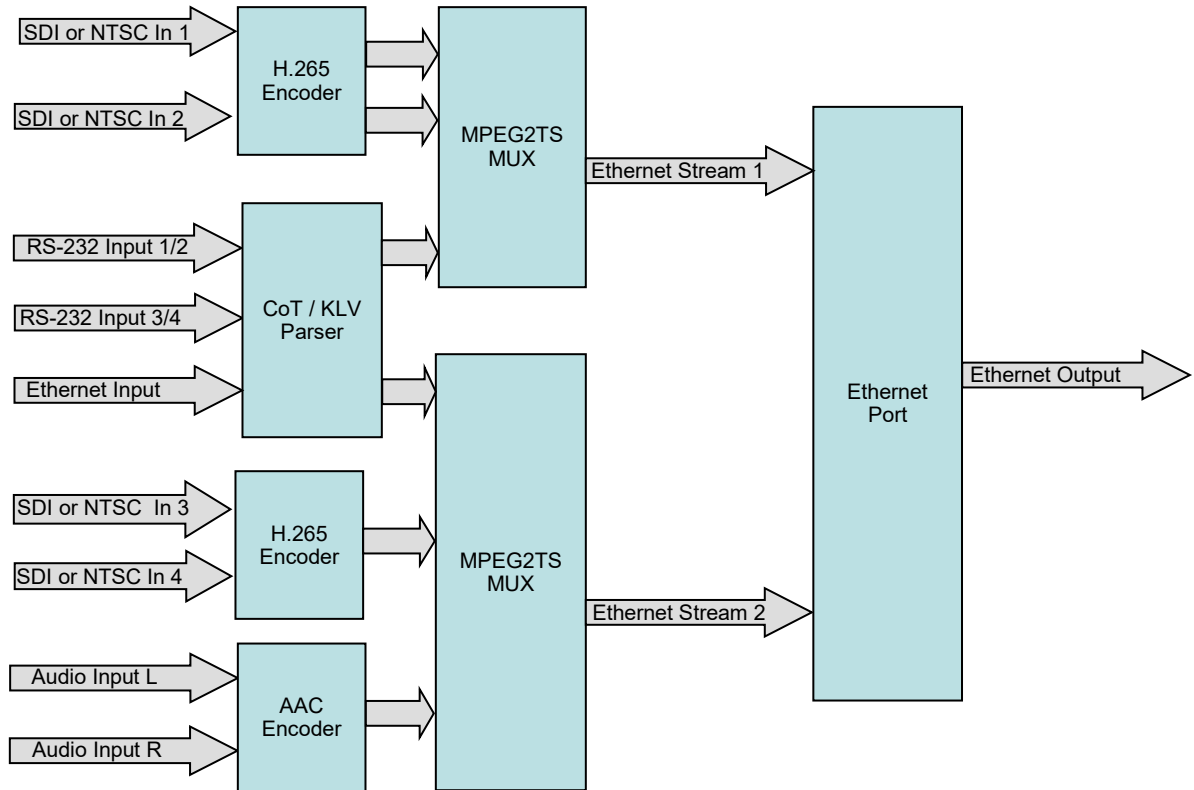
Key Features

- Fully Ruggedized 123.75 Cubic Inch LRU
- Low Size, Weight and Power (SWaP)
- Four 3G-SDI or NTSC/PAL Video Inputs
- H.265/H.264 Video Encoding and Streaming
- Baseline and Main Profiles (H.265 / HEVC)
- High, Baseline and Main Profiles (H.264)
- CoT & KLV Metadata Insertion (VANC, RS-232 & Ethernet)
- 1Gbps Ethernet Output
- AAC Audio Encoding
- MPEG-2 TS Muxing of Video, Audio and CoT/KLV Metadata
- Low Power & Low Latency
- -45°C to 85°C Operating Temperature
- Ruggedized for Vibration, Shock and Humidity (MIL-STD-810 & IP67)
- SNMP Control Support
- Small Compact Form Factor
- Control API for Windows XP/7 & Linux
- Long Term Product Availability

Tyton VS2X Specifications

Video Encoding ¹	H.265 HEVC. H.264. MPEG-2 Transport Stream
Encoding Profiles ²	H.265 : Main Profile with Adjustable Bitrate. AAC Audio Encoding H.264 : (MPEG-4 AVC part 10) Baseline, Main, and High Profiles
Inputs ³	Four 3G-SDI, HD-SDI, SD-SDI, or NTSC, PAL, PAL-M Video Inputs (75Ohm BNC connectors) Two Stereo Audio R/L (37-pin circular MIL spec connector) Four RS-232 for CoT/KLV Metadata (37-pin circular MIL spec connector)
Video Outputs ⁴	Two Bypass 3G-SDI Video Outputs (75Ohm BNC connectors)
Ethernet Output ⁵	10/100/1000 Base-t, w/ Two MPEG-2 TS RTP/UDP Streams (22-pin circular MIL spec connector), auto-detect, half and full duplex, Static IP and DHCP support.
Resolution Support ⁶	3G-SDI SMPTE 424M , SMPTE 425M HD-SDI : SMPTE 292M, SMPTE 274M, SMPTE 296M SD-SDI: SMPTE 259M-C 1920c1080p 60/59.94/50/30/29.97/25/23.98 Hz 1920x1080i 60/59.94/50 Hz 1280x720p 60/59.94/50/30/29.97/25 Hz 720x480i & 576i 60/59.94/50 Hz
Encoder Configurable Parameters Per Stream ⁷	Framing: I, IP, IBP, and IBBP Group of Picture (GOP) size Frame Rate Bit Rates 64kbps to 20 Mbps CBR and VBR Downscaling
Number of Streams Supported ⁸	8 Total Stream (2 per input or various combinations)
Encoder Latency ⁹	60msec or less (image and encoding parameters effects latency)
Encoding Performance ¹⁰	(4) Streams Simultaneously at 3G-SDI SMPTE 424M , SMPTE 425M (8) Streams Simultaneously at HD-SDI : SMPTE 292M, SMPTE 274M, SMPTE 296M Or SD-SDI: SMPTE 259M-C
Network Protocols ¹¹	Multicast streaming with IGMP V3 Multicast UDP Streaming MPEG Transport over UDP/RTP Unicast and Multicast H.264 over RTP(RFC 3984) support.
Video and Metadata ¹²	KLV over SDI and UDP Supported SMPTE 336M, MISB 0601.6, MISB 604.2 Compliant
Management ¹³	HTTPS, SNMP, SSH, Telnet, and API
Operating Temperature ¹⁴	-45°C to 85°C
EMI ¹⁵	Designed to meet MIL-STD-461-F, tested per contract
Airborne Specification ¹⁶	Designed to meet DO-160, testing per contract
Shock / Vibration / Humidity ¹⁷	MIL-STD-810G & IP67
MTBF ¹⁸	>45,000 Hours MIL-HDBK-217F AUF
Power ¹⁹	28VDC, 30W max, to MIL-STD-1275 E on 5-pin MIL-STD-38999 connector
Dimensions and Weight ²⁰	152.40mm W x 69.84mm H x 190.50mm D. ≈ 2.0 kg

Tyton VS2X Block Diagram



EIZO Rugged Solutions
Formerly Tech Source

9/26/2017 Rev A

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