



Ruggedized Multi-Channel Low Latency 1080p60 HD H.264 High Profile Encoder

Designed for the Most Demanding Ground and Airborne ISR Applications - Makito™ XR combines the unrivaled low latency and performance of Haivision's commercial Makito X 3G/HD/SD-SDI/Composite (NTSC/PAL) H.264 encoder in a completely ruggedized MIL-STD-810G/DO-160G compliant form-factor with full KLV/CoT metadata support. The Makito XR addresses the most demanding Intelligence, Surveillance, and Reconnaissance (ISR) video challenges by delivering H.264 video up to 1080p60 with metadata, encoding latency as low as 55 milliseconds, and extremely low end-to-end latency. The Makito XR encoder can support constrained data links found in the most challenging operating environments by reducing the spatial resolution of the video without affecting image aspect ratios. Additionally, two different bitrate (resolution/framerate) H.264 streams can be produced simultaneously from the same source. The Makito XR allows for scaling and frame rate settings to be adjusted on-the-fly, should controls be established from data rate sensing systems.

KLV Metadata - Makito XR supports industry standard MISB-compliant Key-Length-Value (KLV) metadata transport within the MPEG-2 transport stream. Metadata is captured via serial port, Ethernet or the SDI-VANC embedded input video. KLV may be transported using the MISB 0604.2 defined asynchronous or synchronous formats. KLV and video synchronization is achieved by leveraging the MPEG-2 Transport Stream presentation time stamps (PTS) allowing receivers to re-synchronize the metadata with the video. Additionally, Makito XR supports Cursor-on-Target (CoT) metadata. CoT is converted into standard KLV format prior to being multiplexed in the MPEG-2 transport stream.

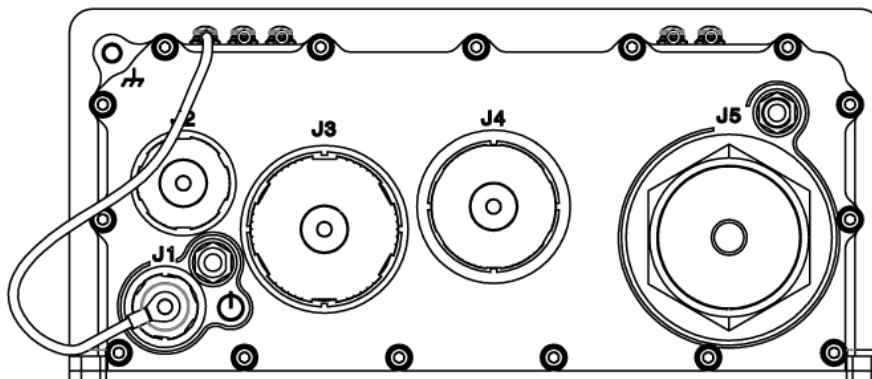
In the Air, on the Ground or at Sea - Makito XR is ideal for installations on-board manned aerial, unmanned aerial, naval and ground platforms ; where video and metadata are transmitted over Terrestrial, LOS or satellite (BLOS) networks to operations and exploitation centers. The Makito XR is also suitable for emergency aid and disaster recovery efforts, Makito XR is ideal for streaming live video from sensor-equipped platforms to first-responders and Emergency dedicated networks Operations Centers.

Features

Benefits

Efficient encoding, exceptional quality	Up to twice the quality using High Profile H.264 for mission-critical decision making
Commercial-Off-The-Shelf (COTS)	Continuous product evolution and improvement with powerful feature sets
Extremely low latency	Support mission-critical communication challenges
Performance in a compact form-factor	Multi-channel encoding in a small, low power, appliance weighing under 7 lbs.
Multi-input and Multi-bitrate streaming	Multiple stream output from a multiple input sources
NATO STANAG 4609 Compliant	Ensures common operating capability amongst coalition forces and partners
Fully Ruggedized DO-160 / MIL-STD-810G / MIL-STD-1275 design	Designed for all weather airborne, naval and ground-based platforms

<p>MAKITO XR SPECIFICATIONS</p> <p>MAKITO XR (MILITARY SPEC ENCODER) <i>Video Inputs (dual or quad input encoder only)</i> Composite NTSC/PAL/PAL-M SD-SDI SMPTE 259M-C HD-SDI SMPTE 292M SMPTE 274M SMPTE 296M 3G-SDI (dual input only) SMPTE 424M (Level A Only) SMPTE 425M</p> <p><i>Video Resolutions:</i> 1920x1080p 60/59.94/50/30/29.97/25/24/23.98 Hz 1920x1080i 60/59.94/50 Hz 1280x720p 60/59.94/50/30/29.97/25 Hz 720x480/576i 60/59.94/50 Hz (interlaced shown in fields per second)</p> <p>VIDEO ENCODING <i>Compression Standard:</i> H.264 (MPEG-4 AVC part 10) ISO/IEC 14496-10 Baseline, Main, and High Profiles Up to Level 4.2 and lower intermediate levels I, IP, IBP, IBBP framing Configurable Group of Picture (GOP) size Configurable frame rate Deblocking filter</p> <p><i>Bit Rates:</i> SD/HD from 32 kbps to 25 Mbps</p> <p><i>Rate Control:</i> CBR/VBR</p> <p><i>Latency (encode only):</i> Less than 55ms</p>	<p>METADATA CoT is available as an option CoT to KLV conversion KLV or CoT over serial RS-232/422 KLV or CoT over UDP KLV over SDI SMPTE 336M compliant MISB 0601.6 compliant MISB 0604.2 compliant Asynchronous & synchronous modes as per MISB 0604.2 High precision timecode insertion as per MISB 0604.2</p> <p>IP NETWORK INTERFACES <i>Standard:</i> Ethernet 10/100/1000 Base-T, auto-detect, Half/Full-duplex Static IP/DHCP</p> <p><i>Connector:</i> RJ45</p> <p><i>Networking Protocols:</i> Unicast streaming Multicast streaming (IGMP v3) Multiple unicast streaming MPEG transport stream over UDP / RTP RTMP SAP (RFC 2974) Direct RTP - H.264 over RTP (RFC 3984) SRT (Secure Reliable Transport)</p>	<p>ADVANCED FEATURES Multi-bitrate (MBR) streaming HD/SD de-interlacing Built-in downscaling EIA-608-B/NTSC Line 21 closed captioning EIA-708-B/SDI closed captioning Forward Error Correction (FEC) AES encryption 128-bit or 256-bit with Furnace Aspect ratio configuration Active Format Description (AFD) Wide Screen Signaling (WSS) Logo overlay Selective Mute</p> <p>MANAGEMENT INTERFACES <i>Standard:</i> RS-232 Ethernet</p> <p><i>Management:</i> HTTPS (web browser) Command line over SSH/Telnet/RS-232 SFTP/TFTP/SCP SNMP v3 Furnace Server</p> <p>MAKITO XR (MILITARY SPEC) APPLIANCE <i>Dimensions:</i> 99mm H x 216mm W x 170mm D (3.9"H x 8.5"W x 6.7"D) <i>Weight:</i> 6.8 lbs. / 3 kg <i>Power:</i> 28VDC, 30W MIL-STD-1275D <i>Temperature:</i> Operating: -40° to 70°C (-40° to 158°F) Non-operating: -45° to 85°C (-49° to 185°F)</p>
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Makito XR

Makito XR Product Portfolio & Ordering Information **

<p>Makito XR Dual Input Makito XR Quad Input KLV & CoT Metadata</p>	<p>S-292E-X2R S-292E-X4R SWO-292E-KLV-COT</p>	<p>Makito XR ruggedized with dual input (3G/HD/SD-SDI and Composite); up to 1080p60; H.264 encoder with KLV. Makito XR ruggedized with quad input (3G/HD/SD-SDI and Composite); up to 1080p60; H.264 encoder with KLV. CoT metadata software option.</p>
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** For complete pricing and ordering, contact us at sales@haivision.com or your certified Haivision reseller.