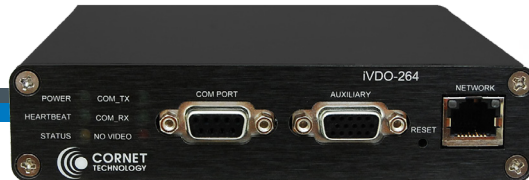![Cornet Switching Systems logo]

CORNET
SWITCHING SYSTEMS

Intelligent VDO® 264

Video SD Encoder/Decoder

The intelligent VDO (iVDO) 264 is a compact, light-weight, and temperaturehardened, STANAG 4609 compliant, H.264 video encoder/decoder designed for IP-based video applications.

Robust Front-end
Time-based Correction (TBC) addresses inconsistencies in received and buffered video by restoring horizontal and vertical sync pulses. This feature lets the encoder maintain synchronization even with highly distorted and noisy signals. Thus less than optimum video can be restored providing cleaner video that it then digitally compresses.

Stream Types
Elementary stream: the iVDO 264 Decoder accepts and decodes raw H.264 video streams received over a UDP socket. Transport Stream: The decoder accepts and decodes RFC 2250 compliant H.264 video/audio streams over MPEG-2 transport stream per ISO/IEC 13818-1:2000.

IP Packets
The iVDO 264 offers two separately addressable IP streams of which one can be multicast and the other unicast. IP-packets allow video to stream to single or multiple sites as required. Both elementary and transport streams are available.

Closed Captioning
Line 21 (both odd and even fields) processing of closed captioning pass-through and decoding of embedded information is provided. The CEA-608 compliant closed caption data is encoded and transported per ANSI/SCTE 128 format by embedding into an H.264 video stream as an ITU-T recommended T.35 SEI message. The raw closed caption data is also available as a separate IP data stream.

Metadata
Metadata is accepted by the encoder through a com port or a UDP socket. It is then transported with an independent program identifier in the transport stream. Alternatively, when the transport stream is not used, data can be transported out-of-band as a separate IP data stream allowing the metadata to be bi-directional through the use of the com port.

Management
Management and configuration is available via Web browser, SNMP, and command line interfaces, including encoder settings in an XML format.

Key Benefits

Encoder
• Standards-based H.264 encoding over64 Kbps to 4 Mbps
• Frame, field, and adaptive coding types
• Interlaced or progressive scanning
• Transport (TS) and elementary streams (ES) available
• Ethernet network port/uni- and multicasting
• Two separately addressable IP streams for uni- and multi-casting
• Unidirectional audio with AAC compression
• Management/configuration via web browser, SNMP, and command line
• Metadata support for external sourced data
• STANAG 4609 Compliant

Decoder
• Elementary Stream: accepts and decodes raw H.264 video streams
• Transport Stream: accepts and decodes RFC 2250 compliant H.264 video/audio stream over MPEG-2 transport stream per ISO/13818-1:2000

Specifications

Video
Format: NTSC color, B/W composite, Y/C 30 fps (29.97), 2:1 interlaced, compliant with EIA-170/RS-170A
PAL color, B/W, composite, 25 fps, 2:1 interlaced
Compliant with CCIR 624

Encoding: ISO/IEC 14496-10 compliant H.264, baseline and main profile

Integrated H.264 Features:
- Quarter Pel Motion Estimator
- Deblocking filter
- Frame, Field and Adaptive Coding
- Intra Prediction
- Interlace or Progressive Scanning

Resolution:
NTSC: 720x480 Full D1, 640x480 VGA, 360x480 ½ D1, 360x240 CIF, 176x144 QCIF
PAL: 720x576 Full D1, 640x576 VGA, 360x576 ½ D1, 360x288 CIF, 172x144 QCIF
Decoder: Capable of displaying lower resolution images in native size and stretch it to full screen

Frame Rate:
NTSC: 1 to 30 Frames Per Second
PAL: 1 to 25 Frames Per Second

GOP Structure: I, IP

Video Parameters: Brightness, contrast, hue, sharpness, and saturation, user settable

Video Latency: 165 msec. (ES); 190 msec. (TS) -- Excludes TBC

Video Bandwidth: 64 Kbps to 4 Mbps in increments of 1 Kbps

Reset recovery: Warm: <3 sec.
Cold: <15 sec.

Video Input
Standard: Active Video: 0 V to 1 V (0 to 140 IRE)

With TBC on: AGC: +3 to -6 dB (Reference 1.0 V p-p)
Video Signal: level sense during Hsync. Restores Hsync, Vsync, Color SC based on internal oscillator as time reference

Stream Type: Elementary: when selected, RFC3984 governs 264 RTP stream. CC data sent as a separate IP stream.
Transport: when selected, RFC 2250 governs MPEG-2 TS per ISO/IEC 13818-1:2000 containing video and audio ES. CC data and metadata present as a user stream in TS.

Line21 Data Capture
NTSC: Pass-through Closed Caption (CC) CC1-4; TX1-4

Audio
- AAC audio compression/decompression
- Mono or Stereo audio output
- Bit rate 9 Kbps to 384 Kbps
- 32 KHz or 48 KHz sample rate

Metadata
Ingests external metadata via serial com port or UDP socket.

Network
Network Protocols: RTP, UDP, TCP/IP, HTTP, IGMP V1/V2, ICMP, ARP, SNMP

Interfaces: RJ-45 with built-in Rx-7x LEDs 10/100 Base-Tx autosensing

SNMP: V1, V2 and V3

IP Packets: Unicast and Multicast (IGMP V2)

Gateway: User configurable or left blank

File transfer: New firmware upgrade via TFTP. XML configuration files can be saved to a PC.
Saved files can be uploaded to a replacement unit, in XML format.

Serial Port Specifications
- One RS-232/422 asynchronous port
- Multi function com port:
    1. Metadata input port for transport stream
    2. Simple bi-directional pass through port
    3. Menu-based console port configuration and management interface
- Standard data rates from 300 Bps to 115200 Bps
- Stop bits 1 and 2 bits; data bits 5, 6, 7, 8; Parity: none, even, odd
- IP socket to Encoder serial port

Management
- Built-in Web browser
- SNMP V1, V2, V3
- Craft/Com port

Mechanical & Environmental

Enclosure:	Heat dissipates through the enclosure
Dimension:	1.25" h x 5.5" w x 6.25"
Weight:	Approximately 2 lbs

Connectors:

Input Video:	BNC (f) composite, 4-pin DIN S-Video, 75 Ω
Output Video:	A/D - >D/A: BNC (f) 75 V
Loop Through:	BNC (f) 75 V
Audio:	Via HD-15 (f)
Ethernet:	One RJ-45 with built-in Tx and Rx LEDs, 10/100BaseT, autosensing, half/full duplex
Serial:	DB-9 (f)
Auxiliary:	HD-15 (f)

AC/DC Converter: Input voltage: 100 - 240 VAC 60/50 Hz

Output voltage: 12 VDC, max 1.5 amps

Electrical

Input Voltage:	6-24 V DC
Power Consumption:	15 W max DC power cable terminated with Phoenix connector
AC/DC Converter:	Input voltage: 100-240 VAC 60/50 Hz Output voltage: 12 VDC, max 1.5 A

Temperature

Operating:	-40° C to +75° C
Storage:	-50° C to 90° C
Humidity:	10% - 95% non-condensing