

# Kyrion

## CM5000



## High Video Quality – Ultra Low latency HEVC, H264, MPEG2 Contribution Encoder

The Kyrion<sup>®</sup> CM5000 encoder has been designed for contribution over satellite, IP and ASI networks, with all needed features, such as ultra-fast-boot, and added value features such as ABR output and integrated Automatic Repeat reQuest (ARQ).

The Kyrion<sup>®</sup>CM5000 is a future-proof solution, with HEVC<sup>4</sup> software upgrade option and pay as you grow support: SD to HD to UHD<sup>(1)</sup>, MPEG2 to H264.

The Kyrion<sup>®</sup> CM5000 can be used as a single, dual channel encoder, or a single channel with DVB-S/S2 modulator. Audio boards for analog or digital inputs can be added on two extension slots.

The Kyrion CM5000 is based on ATEME 5<sup>th</sup> Generation STREAM<sup>®</sup> compression engine, delivers the highest video quality at minimum bitrates with ultra-low latency.

The Kyrion<sup>®</sup> CM5000 front panel and web based user Interface provide quick access to configuration menus and immediate settings ensuring a super-fast boot.

### Key features

- SD/HD/UHD HEVC, H264, MPEG2
- 12-bit 4:2:2
- Ultra low latency mode
- Confidence Audio / Video input monitoring
- Daisy-chain services re-multiplexing
- Contribution over Internet streaming
- FEC Pro MPEG and BISS - 0/1/E (with EBU-R139)
- BISS-CA encryption system support

### Benefits

- Low OPEX link with high VQ at low bitrates
- Ease of use with front panel and web GUI
- Pay as you grow – future proof investment
- Ensures content fidelity
- Streamlined Encoder– Modulator configuration
- Immediate service with ultra-fast-boot and low latency

## Front Panel

Confidence Audio/video monitoring on Front panel with LCD Menus  
17-keys keyboard for input & navigation  
Presets import and export from USB slot  
Serviceable Air Filters

## Rear Panel

### Video Input

SD-SDI (SMPTE259M-C), HD-SDI (SMPTE292M), 3G-SDI (SMPTE-424M)

### Audio Input

Embedded in SDI (up to 16 mono channels per video Input) (SMPTE272M, SMPTE299M)  
AES-EBU input up to 16 mono channels with optional AES board  
Analog input up to 8 audio balanced (-10 dBV to +20 dBV/600 ohms) with optional CM5000-ANL board

### IP / ASI / RF

1x 100/1000 Mbps Gbe port for out-of-band for management  
2x 100/1000 Mbps for service streaming  
2 x ASI outputs per Video Channel  
2 x ASI input for daisy-chain service re-multiplexing  
L-Band RF SMA 50 Ohms output (950-2150MHz)  
IF Band RF BNC 75 Ohms output (50-180 MHz)

### RF Outputs

Main output: -40/ +5 dBm ± 1 dB  
Main output step size: 0.1dB, stability: ±0.1dB  
Frequency step size 100 Hz, Accuracy 0.2 Hz  
Monitoring output -20dBm  
Ref External 10 MHz, input/output

### DVB-S

QPSK, Code rate 1/2, 2/3, 3/4, 5/6, 7/8  
Roll-off 0.20, 0.25, 0.35, Symbol rate 0.1 - 45 MBaud

### DVB-S DSNG

8PSK, FEC 8PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10  
Roll-off 0.20, 0.25, 0.35, Symbol rate 0.1- 45 MBaud

### DVB-S2, DVB-S2x Software upgradeable

QPSK, 8PSK, 16APSK, 32APSK  
CCM, ACM<sup>2</sup>, VCM<sup>2</sup>, Short/Long Frames,  
Roll-off 0.05, 0.10, 0.15, 0.20, 0.25, and 0.35  
Pilots ON, OFF, Symbol rate 0.1 - 68 MBaud

## Video

### Video Compression

HEVC, Main 12, Main 4:2:2 10, Main 4:2:2 12, 120 Mbps max  
H.264 (4:2:0/4:2:2 8-bit, 4:2:0/4:2:2 10-bit)  
SD: 0.5 to 30Mbps, HD: 1 to 120 Mbps  
MPEG-2 (4:2:0/4:2:2 8-bit)  
STREAM © compression engine  
MPEG-4 AVC – I mode up to 150Mbps  
Low Resolution PIP up to SD

### Video Processing

CABAC, CAVLC, MBAFF, PAFF  
Resize & Noise Reduction filters  
Psychovisual Filter Enhancements  
Interoperable Ultra Low latency mode  
Input format detection  
Auto input format configuration mode  
Seamless Channel Insertion (SCI)  
Logo insertion – Emulated video output

### Ancillary data

AFD, WSS, WST, VPS, VPI, VITC, ATC, CC, DPI, DVB  
Teletext, V-Chip, SMPTE2031, OP47,  
SCTE35 insertion via SCTE104 triggers  
DVB-Subtitles ASI/IP multiplexing

## Audio

### Audio Compression

MPEG-1-L2, MPEG-2/MPEG-4 AAC-LC, AAC-HEV1/HEV2 encode  
DD/DD+ encode  
Dolby E decode  
Dolby Digital E, DD/DD+, AES-302M pass-through

## Output Transport Layer

MPEG-2 TS over UDP - Unicast / Multicast  
MPEG-2 TS over DVB-ASI (EN 50083-9)  
ATEME ARQ or SRT streaming option  
ASI and IP streaming simultaneously  
BISS 0/1/E encryption (Tech 3292-rev.2) with selectable PID (EBU R139)  
BISS-CA encryption (Tech 3292-1)  
VLANS - Route Table Editor - Multi-gateways

## Configuration & Management

Web based Graphic User Interface  
In-band and Out-Of-Band Management  
SNMP (MIB v2c) with remote SNMP supervisor  
128 presets configuration memory slots

## Physical and Environmental

Dimensions 19" 1-RU (482 x 44 x 519 mm / 19"x1.73"x 20.4")  
Min Weight 6.4 kg/14.1 lbs. Max Weight 7.3 kg / 17 lbs.  
User Serviceable Air Filters / Cooling air flow from front to back  
Redundant Power supply 100-240 VAC, 50/60 Hz  
Typical consumption: 90 W Single Channel / 40s booting time  
Operating temperature: 0 to 55 °C / +32 ° to +131 °F  
Storage temperature: -20 to 70 °C / -4° to +158 °F  
Operating humidity: 5 to 90% (non-condensing)

Hardware Versions				
	Dual Plug PSU ●	Mono ○ / Dual ⊙ Channel	L-Band ○ / IF ⊙ Modulator	AES Audio input ●
CM5000-DP-1-HD-b	●	○		
CM5000-DP-1-HD-8-H	●	○		
CM5000-DP-1-HD-10-AES-H	●	○		●
CM5000-DP-1-HD-HEVC12-AES	●	○		●
CM5000-DP-1-HD-8-MLB	●	○	○	
CM5000-DP-1-HD-10-MLB-AES	●	○	○	●
CM5000-DP-1-HD-8-MIF	●	○	⊙	
CM5000-DP-1-HD-10-MIF-AES	●	○	⊙	●
CM5000-DP-2-HD-b	●	⊙		
CM5000-DP-2-HD-10	●	⊙		

Hardware Options	
CM5000-AES	External Digital AES/EBU inputs audio board + audio cable - Up to 16 audio inputs
CM5000-ANL	External Analog inputs audio board + audio cable - Up to 8 audio inputs

Software Options					
	MPEG-2 ● / MPEG-4 ○ / HEVC ⊙	Audio number per video channel	MPEG-4 / HEVC profiles	Maximum bitrate	FEC ● BISS ○
CM5000-DP-1-HD-b	/ ○ /	4	4:2:0 - 8/*	20	/
CM5000-DP-1-HD-8-H	● / ○ /	8	4:2:0 - 8/*	42	● / ○
CM5000-DP-1-HD-10-AES-H	● / ○ /	16	4:2:2 - 10/*	120	● / ○
CM5000-DP-1-HD-HEVC12-AES	● / ○ / ⊙	16	4:2:2 - 10/12	120	● / ○
CM5000-DP-1-HD-8-MLB/MIF	● / ○ /	8	4:2:0 - 8/*	42	● / ○
CM5000-DP-1-HD-10-MLB/MIF-AES	● / ○ /	16	4:2:2 - 10/*	120	● / ○
CM5000-DP-2-HD-b	/ ○ /	4	4:2:0 - 8/*	20	/
CM5000-DP-2-HD-10	● / ○ /	16	4:2:2 - 10/*	120	● / ○

<sup>1</sup> via cascading

<sup>2</sup> Contact factory for availability