

Rugged STANAG 4609 Multiplexer and Recorder Metadata & Audio & Video H.264 AVC encoder over IP



Fusion H264-B is designed to synchronize audio and metadata with video and encode this aggregate as per ISO14496-10 and store and transmit it under ISO13818 stream over UDP Internet Protocol.

Target applications are transport security (air, rail and road), homeland, vetronic, video surveillance, observation & intelligence, aircraft remote control, helicopter and aircraft transmission over DVB and broadband IP networks.

Fusion H264-B adds **High Definition MPEG4 AVC High Profile** video/audio and data acquisition capabilities to your embedded system. Effective video compression rate varies from 2 to 15 Mbps according to the configured video compression level. For multi-sensor applications, all video are dispatched over a **mosaic** stream.

Fusion H264-B includes a **STANAG 4609 multiplexer** with picture synchronization. Metadata acquisition and KLV generation are based upon dictionaries technologies.

Fusion H264-B is an Audio-Video-Metadata **recorder**. The rugged and removable SSD can be read/copy by standard PC with USB interface. The recorded file format is ".ts" and can be viewed by all **standard S/W** like VLC.

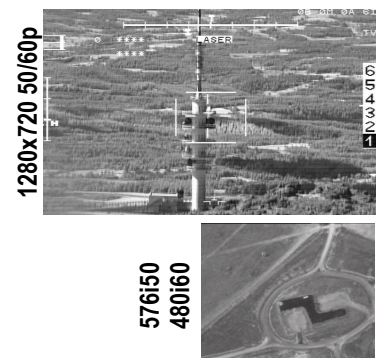
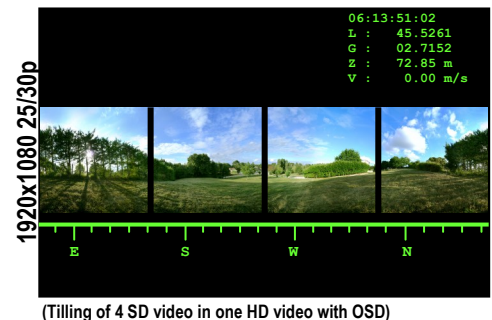
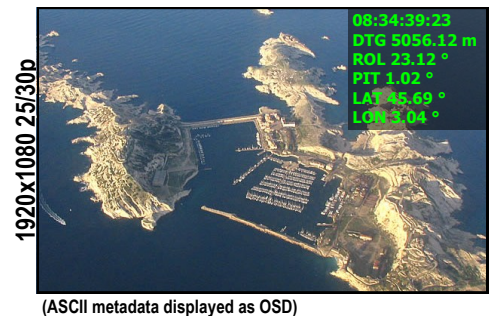
The audio/video/metadata output stream is **simultaneously** recorded and generated over UDP/IP, for air to ground transmission and for direct monitoring with all standard S/W like VLC.

For advanced visualization and recording solution of STANAG 4609 streams and Snapshot, please refer to Vodea's Visu_4609 S/W product.

Fusion H264-B is designed to simplify your **system integration**. It provides :

- Several Ethernet links with an Ethernet switch,
- several serial/USB interfaces, dry loop contacts,
- video inputs can be copy-back to outputs.

Fusion H264-B is an **embedded equipment for harsh environment** (AIR 7306) featuring 38999 connectors, IP65, low power fully conduction cooled, extended operation temperature range, 17V-32V power supply (AIR 2021).



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Main Audio/Video Channel features

- 1 x **video input** : digital (SMPTE 292M / 259M (1080p25/30 - 1080i50/60- 720p50/60 - 576i / 480i) or **analog** (PAL / NTSC / CVBS) with video input **copy as output**.
- 1 stereo analog audio input (600 Ω, 1,5Vpp) (48 kHz/16 bits sampling)
- **Picture time stamping** :
- extracted from VITC or SDI ancillary data .
- generated in VU Data NAL for ES level or SCTE127 for TS level (option)
- **Snapshot** : uncompressed 4:2:2 bitmap over UDP/IP, without freezing video streams
- 1 x audio/video Encoder
- MPEG-4 **AVC Video encoder** comply with H.264/AVC **High Profile, Level 3.0 & 4.0** (ISO / IEC14496-10). 1 to 20 Mbit/s - CBR/VBR
- MPEG-1 **Audio Layer 2 encoder**. Adjustable compression levels (64 to 256 Kbit/s)
- 1 x **time stamped & compressed audio/video output stream** : MPEG TS (ISO/IEC13818-1) over UDP/IP (broadcast / multicast)

STANAG 4609 Multiplexer

- Metadata acquisition :
- Interface/format : KLV **MISB Standard 601.2** in **SDI Ancillary data** (SMPTE RP214). KLV or XML on Ethernet or RS, or others (option).
- Metadata max. ingest frequency : 60 Hz

- **KLV / picture association** :
- MISB Standard 0604 (**synchronized**) : **exact** KLV / picture time stamp association. Latency is user configurable.
- SMPTE RP217 (unsynchronized with a latency of 80 ms)
- **MISB dictionaries** used for KLV generation : Standard 601.2 and 102.5, EG 104.5 and 801.2 (Others on request).
- 1 x **STANAG 4609 Ed2 or Ed3 output stream** (ISO/IEC 13818-1) over UDP/IP (broadcast / multicast)

Additional Video Channels features (satcom)

- Up to 4 x **analog video input** (PAL / NTSC / CVBS) or 1 x **digital video input** (SMPTE 292M / 259M (720p50/60 - 576i / 480i)
- **Image processing**: pan, shrink, tiling of 4 SD in one SD/HD video.
- 1 x video Encoder
- MPEG-4 **AVC Video encoder** comply with H.264/AVC **Main Profile, Level 3.0 & 4.0** (ISO / IEC14496-10). Adjustable compression level (0,5 Mb/s to 10 Mbit/s - CBR/VBR)
- Others encoding algorithm (option).
- 1 x **time stamped & compressed video output stream** : (ISO/IEC13818-1) over UDP/IP (broadcast / multicast)

Recording output streams

- Up to 128 GB external **rugged flash memory** (32 GB = 11 hours mission at 6 Mbits)
- Read-back trough USB interface, with standard **filesystem** (copy, erase). Each file (".ts") is compliant with a **COTS viewer**.
- Recording of the **compressed audio / video / metadata output stream** is simultaneous with its generation over UDP/IP.
- A rolling buffer of 10 seconds is recorded, prior to start command (option).

Other main services

- **System Time**: IRIG-B002 or NTP
- **Control-Command** :
- Airborne Remote Control Unit (Dry Loop).
- SNMP or HTTP portal or others (option).

Information Technology (option)

- Up to 4 x **USB 2** or **RS422** or insulated **RS232**
- Up to 6 x **100BT Ethernet switch**.
- Up to 1 x **DVI** : 800 x 600 @ 75 Hz
- Up to 64 GB **internal flash disk** (option)

Environmental spec (GAM EG 13 B)

- **AIR 7306** : Carrier type : 1, 2, 6, 7, Class 1B, zone B and C. Fascicules **01** [op. : -40°C | non op. : -55°C], **02** [op. : +55°C | non op. : +85°C], **03** [op. : 2 cycles 30°C-85%HR | non op. : 2 cycles 60°C-93%HR 48h], **05** [1500 feet], **07** [-55°C to +55°C, 3 cycles, 10°C/min], **42** [both : Fig. 13 & 22], **43** [op.:7.5g/20ms +15g/9ms (3 chocs/axe/dir.) | non op.:15g/20ms (1 choc/axe/direction)], **45** [both : table §4.3.2.2], **62** [C1,C3, R1, R3], **63** [C1,C3, C4, C5, R1, R3], **61** [≤ 2.5mΩ / 10A], **81** [≥ 10MΩ / 50V], **82** [≥ 500V],
- **AIR 2021E** : steady state [Normal: 24V-29V | Abnormal : 20,5V-32.2V | Emergency : 17V], transient [Low normal: 12V/50ms | High abnormal : 60V/100ms], Power interrupt [Not supported], Spikes [+/-600V/10us)

Physical features

- Dim: 240 x 190 x 90 mm (D x W x H)
- MIL STD-38999 connectors
- 15 - 35 Watt depending on configuration
- Weight: < 3.9 Kg
- IP65 when plugged or ended with caps
- Fully Conduction Cool (fan less)

Each 11/35 type connector houses 2 interfaces :

- 1 Ethernet 100BT
 - 1 USB2 or 1 RS422 or 1 insulated RS232
- One green LED per interface for monitoring data activity

With USB keyboard and mouse this DVI output may be used to directly control or command the Equipment.

