nanoHydra-HD1SD4

Multi Channel Video Streaming Appliance

The nanoHydra-HD1SD4 is a multi-channel, Ultra Low Latency (ULL) IP video streaming appliance. The nanoHydra-HD1-SD4 captures 1x HD-SDI and 4x PAL/NTSC/RS-170 video channels, encodes and streams them over Ethernet. This rugged video appliance is ideal for rapid deployment in demanding applications in Military, Communications, Transportation and Energy industries.

The nanoHydra-HD1SD4 features a dedicated hardware H.264/H.265 compression engine capable of encoding multiple channels at full size and full frame rate. The flexible RTSP/RTP streaming engine supports Unicast and Multicast and streams user configurable combinations of the channels over the GigE Ethernet to client systems for low latency viewing and analysis. KLV metadata capture is supported on the HD-SDI input. The metadata is extracted and embedded into the encoded stream for client processing and display.

The nanoHydra-HD1SD4 has an integrated power supply and can be driven from a regulated 9-20V DC input. The system is housed in a rugged, watertight, conduction cooled, IP67 rated enclosure with sealed MIL-D38999 connectors and is ready to be installed into mobile platforms and harsh environments.

Key Features

- HD-SDI input at up to 1080p60 (SMPTE 292M, SMPTE 424M)
- 4x PAL/NTSC/RS-170 video channels
- High quality, Ultra Low Latency H.264/H.265 video compression
- Video Encode Latency less than 50ms
- Gigabit Ethernet
- Rugged IP67 enclosure
- 9V to 20V Power Supply
- MIL-D38999 connectors for secure cabling

RVAP

The nanoHydra-HD1SD4 is one of AMP's Ready Video Appliance Platforms (RVAP). Using proven rugged PC/104 modules with a custom designed IP67 enclosure, our RVAP are SWaP optimised COTS solutions for a wide range of embedded video requirements.

Contact us for details on how RVAP can help in your project.

Rev A.00
Subject to change without notification

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nanoHydra-HD1SD4

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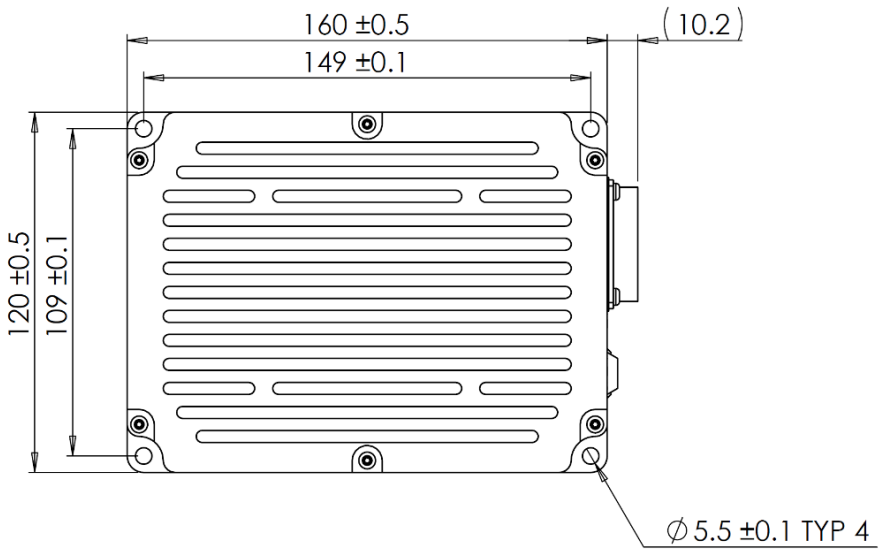
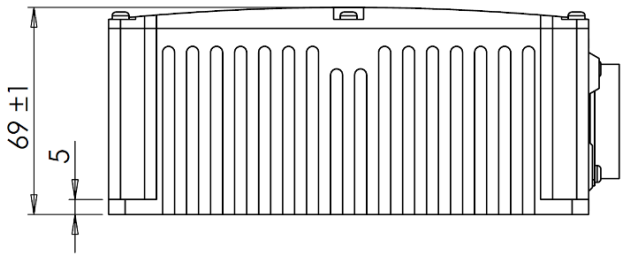
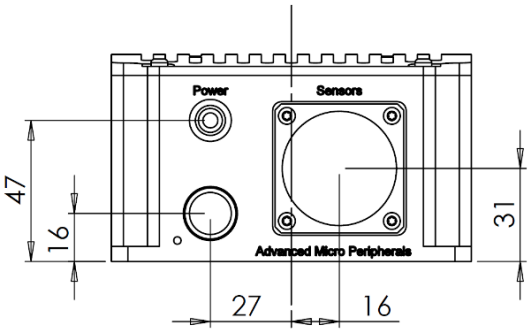
Mechanical Drawing







Example Applications

- Surveillance and Reconnaissance
- Vehicle Safety
- Training and Simulation
- Machine Vision
- Remote Supervision
- Maritime Operations
- Pipeline Inspection
- Diagnostic Imaging
- Border Security
- Public Space Surveillance
- Pilot Observation
- Infrastructure monitoring

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Multi Channel Video Streaming Appliance

Technical Specification

Digital Video Input

HD-SDI input at up to 1080p60 (SMPTE 292M, SMPTE 424M)
Standard resolutions supported include:
1080p60, 1080p50, 1080p30, 1080p25
720p60, 720p50

Analog Video Inputs

4 independent PAL/NTSC/RS-170 inputs

Audio inputs

4 independent mono audio inputs
Provides audio/video synchronization

Multi-channel Encoding

User configurable channel settings
Flexible channel selection examples
H.264: 1x HD 1080p60
H.264: 1x HD 1080p30, 4x PAL/NTSC
H.265: 1x HD 1080p30, 2x PAL/NTSC

H.264 Video Compression

ITU-T H.264 (ISO/IEC 14496-10), supported profiles:
Baseline profile
Main profile (I,P frame coding only)
High profile (I,P frame coding only) at level 4.1
Supports Variable Bit Rate (VBR)
Support Constant Bit Rate (CBR)
Real-time multi stream H.264 Ultra Low Latency encode

H.265 Video Compression

ITU-T H.265 (ISO/IEC 23008-2), supported profiles:
Main profile (I,P frame coding only)
Supports Variable Bit Rate (VBR)
Support Constant Bit Rate (CBR)
Real-time multi stream H.265 Ultra Low Latency encode

KLV Metadata

Embedded KLV metadata capture from HD-SDI input

Ultra Low Latency (ULL)

Less than 50ms video encode latency (1)

Streaming

RTSP/RTP Multicast or Unicast streaming
RTSP (RFC2326) and RTP (RFC3350) support
RTSP/RTP over TCP
RTP over UDP

Network Interface

Gigabit Ethernet for RTSP/RTP streaming and control

Control

Web front end
RTSP command interface

Power

9-20V regulated DC input

Mechanical

Milled from solid Aluminium Alloy block
Size: 160 x 120 x 69 mm (6.3 x 4.7 x 2.7 inch) LWH
MIL-D38999 Connectors

Environmental

Operating temp –40˚C to +70˚C
IP67 dust-proof, water immersion to 1m

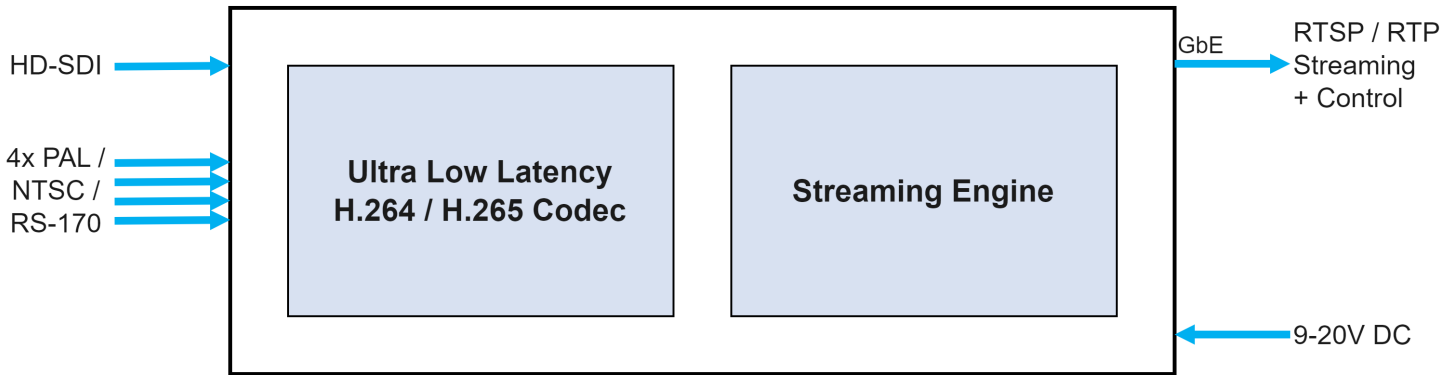
Standards Compliance

MIL-STD-810G(2)

Ordering Information

nanoHydra-HD1SD4 Multi channel video streamer

Functional Diagram



(1) Streaming latency is less then 50ms. When audio is included in the stream, overall system Glass-to-Glass streaming latency can be higher due to audio buffering at the remote client.
(2) The AMP nanoHydra family is designed to meet MIL-STD-810G requirements. Individual configurations are qualified through similarity with a base nano-Hydra configuration.

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