

nanoHydra-AI-2HDSDI

Dual HD-SDI input AI Video Inference Platform

The nanoHydra-AI-2HDSDI is part of AMP's nanoHydra-AI video appliance range that integrate powerful AI/ML processors with multi-spectral live video inputs. The nanoHydra-AI-2HDSDI uses an NVIDIA® Jetson™ Xavier NX processor and features dual HDMI live video inputs for building vision-enabled AI applications. This rugged video appliance is ideal for rapid deployment in demanding applications in Military, Communications, Transportation and Energy industries.



The nanoHydra-AI-2HDSDI supports dual HD-SDI inputs at up to 1080p60. The inputs can be simultaneously captured for AI processing / Inference. The nanoHydra-AI-2HDSDI has in-unit NVMe storage and provides a gigabit Ethernet connection for control and data transfer as required by the application. Internal expansion is provided as PCIe/104 OneBank™ or miniPCie allowing additional application specific hardware to be added to the system.

The nanoHydra-AI-2HDSDI has an integrated power supply and can be driven from a regulated 9-15V 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

- ◆ Dual HD-SDI input at up to 1080p60 (SMPTE 292M, SMPTE 424M)
- ◆ 8x PAL/NTSC/RS-170 video channels (option)
- ◆ NVIDIA® Jetson™ Xavier NX processor
- ◆ Highly customizable AI video inference system
- ◆ Gigabit Ethernet
- ◆ Integrated NVMe storage
- ◆ Rugged IP67 enclosure
- ◆ 9V to 15V Power Supply
- ◆ MIL-D38999 connectors for secure cabling

RVAP

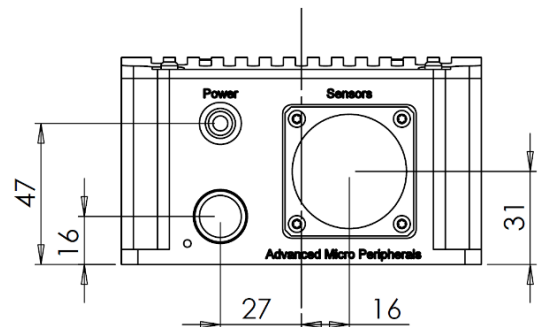
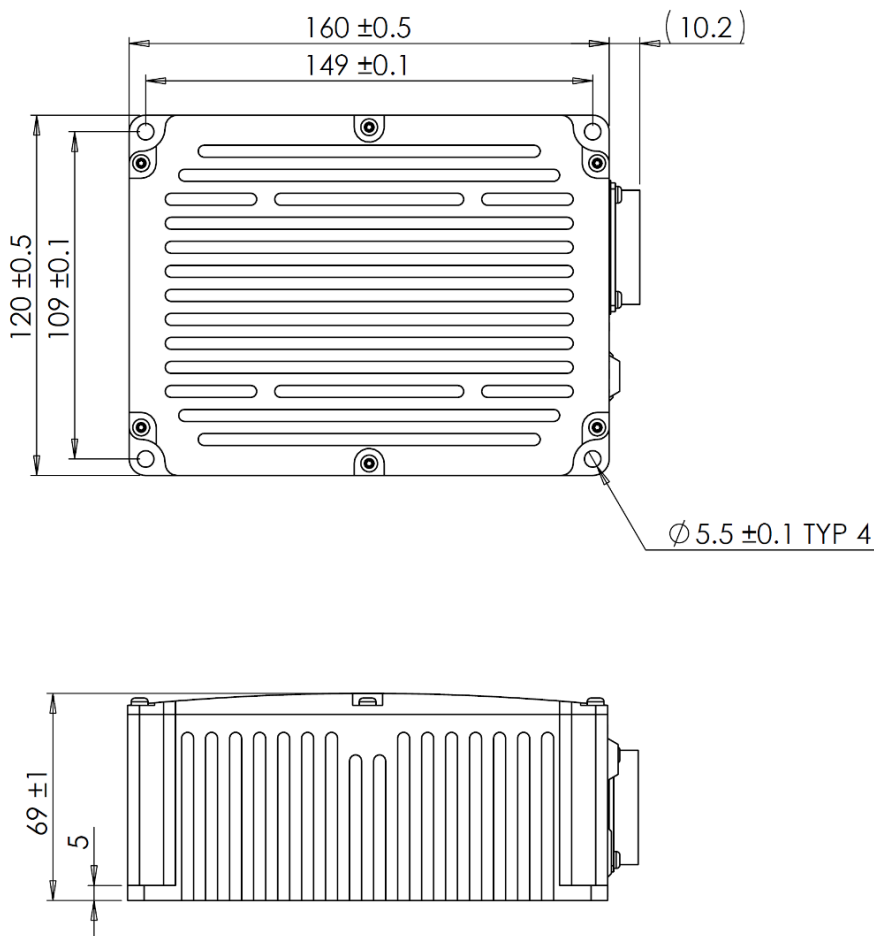
The nanoHydra-AI is one of AMP's Ready Video Appliance Platforms (RVAP). Using proven rugged PC/104 modules with a custom designed IP67 enclosure, our RVAP are SWaP optimised COTS solutions for a wide range of embedded video requirements.

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





Mechanical Drawing



Example Applications

The nanoHydra-AI-2HDSOI is a highly configurable AI video inference platform ready for rapid development and deployment of vision enabled AI video systems. The nanoHydra-AI-2HDSOI is ideal for applications such as:

- ◆ Perimeter monitoring
- ◆ Threat Detection
- ◆ Evidence Analysis
- ◆ Quality Assurance and Inspection
- ◆ Warehouse Automation
- ◆ Patient Monitoring
- ◆ Utility Inspections
- ◆ Driver Monitoring System
- ◆ Traffic Analysis
- ◆ Crowd Control





Technical Specification

AI Processor Module

NVIDIA® Jetson Xavier™ NX

AI Performance: 21TOPS

GPU: 384-core NVIDIA Volta™ GPU with 48 Tensor Cores

CPU: 6-core NVIDIA Carmel ARM® v8.2 64bit

Memory: 8GB 128-bit LPDDR4x

Storage: 16GB eMMC 5.1

Digital Video Input

Dual HD-SDI input at up to 1080p60 (SMPTE 292M, SMPTE 424M)

Standard resolutions supported include:

1080p60, 1080p50, 1080p30, 1080p25

720p60, 720p50

Analog Video Inputs (option)

8x independent PAL/NTSC/RS-170 inputs

Video Compression

ITU-T H.264 (ISO/IEC 14496-10)

ITU-T H.265 (ISO/IEC 23008-2)

Real-time multi stream video encode

Network Interface

1x Gigabit Ethernet

Control, Data transfer, video streaming

Storage

Internal M.2 (Key M) NVMe SSD (factory fitted)

Expansion

PCIe/104 OneBank™

miniPCIe (PCIe104 to miniPCIe bridge card - option)

Power

9-15V 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

Software

Uses the NVIDIA JetPack ecosystem:

DeepStream, CUDA, TensorRT

Support for Ubuntu Linux

Board Support Package

Application notes:

AI Video analytics

Video encoding and streaming

Standards Compliance

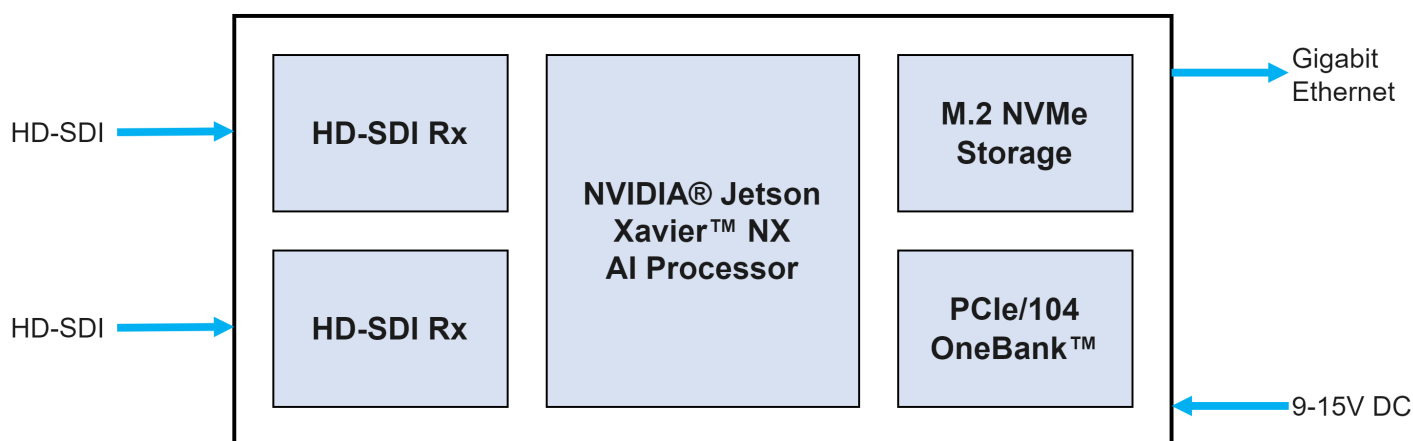
MIL-STD-810G⁽¹⁾

Ordering Information

nanoHydra-AI-2HDSI

Dual HD-SDI input AI video inference platform

Functional Diagram



⁽¹⁾ The AMP nanoHydra family is designed to meet MIL-STD-810G requirements. Individual configurations are qualified through similarity with a base nanoHydra configuration.

