Malin Space Science Systems

Exploration Through Imaging

ECAM-DVR1P/4P/8P

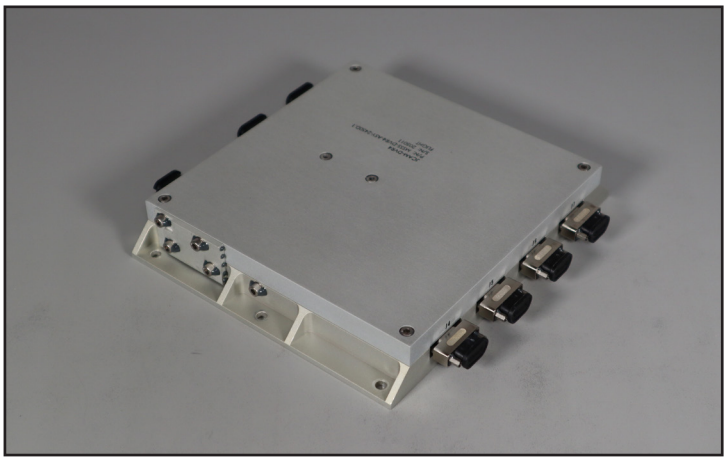
1, 4, and 8-Port Digital Video Recorder,
2nd Generation, In-System Programmable

Power	
Supply Voltage	28V (22 to 36V) redundant supplies w/blocking diodes
Power, Idle (per 4-port slice)	8W typical
Power, Imaging (per 4-port slice)	12W typical 40W max. (for fuse sizing)

Thermal	
Operating Temperature	-45 to +55 °C
Protoflight Qualification	-55 to +70 °C
Non-Operating Temperature	-55 to +70 °C
Temperature Sensing	Redundant internal ISL71590 available for readout on J1 Internal HK subsystem monitors camera temperatures

Digital (for each independent 4-port slice)	
Internal Memory	8 GByte SLC NAND Flash (standard) +8 GByte SLC NAND Flash (option) +500 GByte TLC NAND Flash (option) +512 MByte DDR2 SDRAM (option)
Digital Processing	Huffman Lossless Compression JPEG Compression h.264 Compression (option)
Data Interface	LVDS or RS-422 Two connectors 4x input, 4x output each connector

Survivability	
Radiation Design Environment	5 years GEO standard, up to 15 years GEO optional
Predicted MTTF	0.768 million hours
NASA TRL	7



ECAM-DVR4P

Features

- Support one (DVR1), four (DVR4), or eight (DVR8) cameras
- Data recording, pre-processing, compression, and playback
- Supports low-latency video streaming
- JPEG and Huffman lossless compression
- H.264 compression optional
- Non-uniformity/fixed-pattern noise correction
- Configurable non-voltatile memory options up to 500 GByte
- Radiation-tolerant design for critical applications
- All logic and software configuration is in-system programmable

Applications

- Interplanetary science
- Reconnaissance
- Robotic on-orbit servicing
- Mission extension and inspection services
- Rendezvous Proximity Operations (RPO) and docking
- Space Situational Awareness (SSA)

Programmability

- Spacewire, high-speed serial, and asynchronous serial S/C interfaces
- Support for custom S/C interface protocols
- All system, camera, and image processing fully commandable

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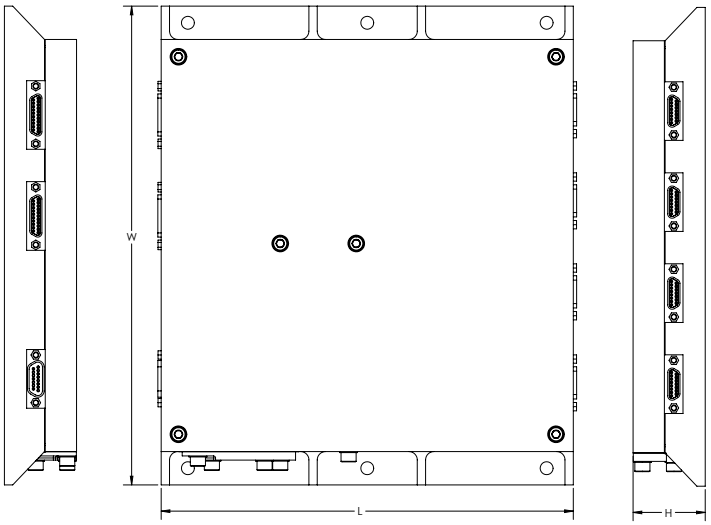
ECAM-DVR1P/4P

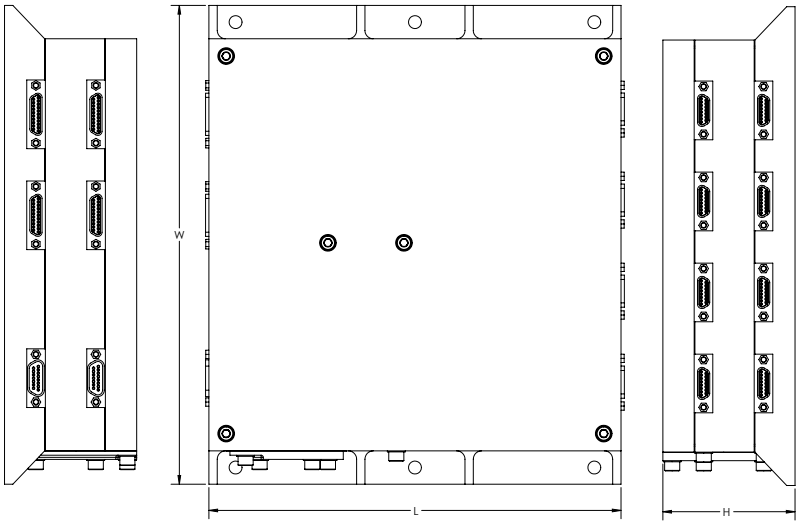
Dimensional Envelope

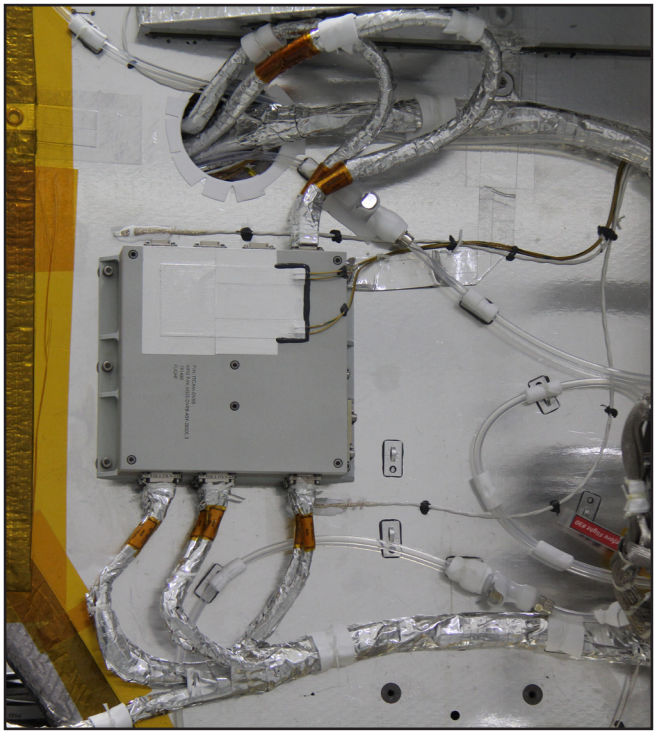


Mechanical/Interfaces			
Configuration	**DVR1P**	**DVR4P**	**DVR8P**
Mass	1350 g	1350 g	2275 g
Dimensional Envelope	L: 157 mm W: 183 mm H: 30 mm	L: 157 mm W: 183 mm H: 30 mm	L: 157 mm W: 183 mm H: 55 mm
Connectors (per 4-port slice)	S/C Power: Micro-D, 15-Socket S/C Data: Micro-D, 21-Pin Cameras: Micro-D, 15-Pin		

ECAM-DVR8P

Dimensional Envelope





This ECAM-DVR8L (1st generation) is installed on NASA's Lucy spacecraft with external thermal controls added during ATLO. Each 4-port slice of this DVR8 supports a single ECAM-M50 camera for navigation, providing full end-to-end redundancy and cross-strapped redundant interfaces to the spacecraft. Image Credit: MSSS

Quality: AS9100D:2016 Compliant
DUNS Number: 62-680-9032
CAGE Code: 0R9V5
NAICS Codes: 334511, 336419, 541690, 541715

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