

Secure Data Recorder

Secure video, audio and data recording solutions

General Dynamics Mission Systems has more than 30-years' experience providing solid state digital data recording solutions for land-based and avionic systems. To address the ever increasing need for security of the data recorded, General Dynamics Mission Systems has developed a family of multi-channel secure data recorders based on their security accredited airborne solid state recording system.

The Secure Data Recorder (SDR) provides an accreditable security solution allowing the user to operate in unfriendly environments with the confidence that data is safely stored. The Secure Data Recorder has been qualified for both manned and unmanned platforms operating in air, land and maritime environments.

The Secure Data Recorder is suitable for the transfer of data on and off all types of platforms, through the use of an easily inserted data brick. Typical transfers include the uploading of mission data and digital map data, along with the extraction of recorded data such as EO sensor video, voice communications and tactical mission data. A low risk affordable security option is available for all family variants.

The Secure Data Recorder product family provides a core hardware unit that can be configured to support an array of different input data types including:

- Mil Std 1553
- ARINC 429
- Ethernet and gigabit ethernet
- RS242/422
- Video over IP
- PAL and NTSC video
- Standard and high definition video



Secure video, voice and data recorder

Multiple data interfaces, large data capacity, accredited solution

Rugged, reliable recording

All variants of the recorder family offer:

- ✓ Up to eight independent recording channels
- ✓ User selectable compression ratios
- ✓ Concurrent playback of one channel
- ✓ Metadata recorded on each channel to enhance the playback capabilities of the Ground Support System (GSS) for de-brief and intelligence exploitation
- ✓ Industry standard storage formats
- ✓ Instant secure purge facility
- ✓ Fast data extraction up to 300MB per second
- ✓ Hot swapping for crew handover
- ✓ Up to 1TB with growth capability
- ✓ Standard control functions: record, play, fast forward, rewind, pause, stop and marker insertion
- ✓ Security accredited solution available
- ✓ Optimised user access for fast data brick insertion and removal
- ✓ Low size, weight and power (SWaP)
- ✓ Designed for maximum installation flexibility for platform integrators
 - Rack mounted
 - Panel mounted (DZUS)
 - Multiple control interfaces:
 - Ethernet
 - DEF STAN 00-82
 - Serial (RS422)
 - Discretes
- ✓ Built-in test (BIT) and maintenance port for access to the BIT log
- ✓ Elapsed time indicator (ETI)
- ✓ Internal high performance processor for additional functionality, for example:
 - Digital map
 - Image enhancement
 - Intelligence extraction through automatic scene analysis
 - Automatic meta data generation



End-to-end solution

For fully integrated digital platforms, the Secure Data Recorder digital control interface (ethernet or RS422) provides a means for the integrator to build a recorder human machine interface into their existing display system.

For a non-integrated platform or retrofit programme, a standalone control panel provides a flexible, lightweight, rugged solution.

As important as the recording media, is the ground support system. All data is stored in an industry standard file system using formats such as JPEG and MPEG. To provide greater exploitation and de-brief capability, the GSS offers:

- ✓ Mission data loading including digital maps
- ✓ Encryption key loading, for the secure version
- ✓ Multiple channel concurrent playback
- ✓ Integrated 2D / 3D digital map with overlays to show sensor coverage
- ✓ Metadata extraction
- ✓ Fast forward / rewind to markers.

Details of the image exploitation software, D-VEX, can be found at www.gdmediaware.com.au



The rugged docking station designed for harsh environments including shipborne

Scalable – adaptable – secure – affordable



Secure recording

The security of recorded sensitive mission data and intelligence is becoming a major concern for UK and international markets. With the increase of secure data sourced from tactical data links, communication systems and the sensitivity of intelligence derived from the multitude of platform sensors, the traditional approach to the non-secure storage of this data is no longer tangible or sustainable:

- ✓ National security agencies are no longer willing to provide waivers for platforms lacking secure recording, as secure solutions are now available
- ✓ The management of removable data bricks containing sensitive data is driving up the life cycle costs due to archiving and disposal
- ✓ Increasing man power resources to handle the data bricks once removed from the platform
- ✓ Approved / accredited safe fast erase for large data stores.

General Dynamics Mission Systems has teamed with ViaSat to develop a low-risk secure solution that is International Traffic in Arms Regulations (ITAR) free. ViaSat has a long pedigree for providing 'secure data at rest' solutions. The Secure Data Recorder solution is based on the ViaSat security accredited Eclipt 600 product range, adapted by General Dynamics Mission Systems for harsh operating environments as experienced in air, land and sea domains. Already proven on the UK Lynx Wildcat helicopter and AJAX Armoured Fighting Vehicle programmes, General Dynamics Mission Systems and ViaSat are able to provide a low-risk solution due to existing security accredited, flexible data interface options and large storage capacity (up to 1TB) to cater for all data generated during the extremes of operational deployment.

Autonomous keying on application of power ensures ease of use for platform operators and maintainers due to:

- ✓ No password entry on the platform is required reducing user error
- ✓ Reduced complexity of the control panel HMI and operator training
- ✓ Power outage resilience such as ground power switch over
- ✓ Instant secure non destructive purge

Upon power removal or extraction of the data brick, there is a two protective marking (PM) security level drop, eg SECRET down to RESTRICTED, reducing the cost through an easier handling procedures.



Specification

Technical parameters	Avionic variant Secure Data Recorder	Land variant Secure Data Recorder
Dimensions HxWxD(mm)	122 x 159 x 165	129 x 171 x 247
Weight(Kg)	3.75 to 3.95	3.8 to 4.05
Inputs	Composite NTSC/PAL/RS-170 video Analogue HD input (YPbPr, VGA,RGB) Digital HD input (DVI,HDMI) STANAG 4609 KLV Ethernet (video and data)	
Compression	H.264 encoded compression MPEG-4 compression	
Applicable standards	RTCA DO-160G DEF-STAN 00-35 DEF-STAN 59-411 MIL-STD 704	DEF-STAN 59-411 DEF-STAN 23-09
Power supply	28v DC	
Power dissipation (W)	20.6 to 30 (typically 25)	
Encrypted memory capacity	Up to 1TB	
Maintenance data memory	Up to 1GB	
Control interface	MIL-STD-1553B DEF-STAN 00-82 ARINC 429 Serial Discretes	DEF-STAN 00-82 Serial Discretes
Erase	Dedicated discrete and manual purge button (< 100ms)	
Generic interface	Gigabit ethernet	
Available features	Recording of video, audio and data Event marking of recorded data User definable compression rates Video pre-capture	
Cooling requirements	Radiation and conduction cooling through case and fixings	
Operating temperature	-40°C to +70°C	
Storage temperature	-55°C to +85°C	
Software certification	RTCA DO-178C – certifiable up to level D	
Hardware certification	RTCA DO-254 – certifiable up to level D	

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