

Obtain a complete record of all transmissions and receptions, including terminal generated messages, navigation performance, signal quality measures, and digitized voice.



A COMPLETE RECORD OF TERMINAL PERFORMANCE

Link 16 terminals, including MIDS-LVT(1)s, MIDS-LVT(2)s, FDLs, and MIDS JTRS are used by the military for tactical communications. A support port on these terminals provides a means of obtaining detailed information about the data exchanged. The MIDS Flight Recorder connects to the terminal's support port interface to automatically record data, including terminal performance data not available on the normal host interface. The additional data is invaluable for flight test verification. A Recording Configuration Editor with a simple GUI is provided with the Recorder that eliminates the requirement to perform HEX editing of recording parameters.

The MIDS Flight Recorder mounts to a bulkhead using four #10 fasteners in the corners. Viasat recommends that NAS 1101 fasteners be used. Although the Recorder is a commercial product, it is suitable for use in fighter aircraft and meets many of the same environmental requirements for MIDS terminals.

INTERFACES

The Recorder employs D38999 connectors. It receives power from the aircraft's 28 VDC power supply and communicates with the MIDS Terminal via an AUI or Ethernet interface. A DFX Memory Token provides removable bulk storage and is used for recording of flight test data.

OPERATION

Once power is applied, the Recorder automatically establishes a connection with the terminal and enables the recording function. A control file specifying which Functional Input Messages (FIMs), Functional Output Messages (FOMs), Data Transfer Blocks (DTBs), Internal Data Blocks (IDBs), and Status Words are to be recorded is prepared in advance and stored on the memory token by the test analyst. This allows the test director to obtain information not available on the 1553 interface without impacting the mission computer. The memory token may also hold the recording software, making it easy to upgrade to new software versions.

A new file is automatically started every time the terminal is restarted using a sequential naming convention. Even if every time slot contains Fixed Format messages at Packed-4, the 4 GB removable memory token will hold over 40 hours of recorded data. That's a time slot duty factor of 172%. If only half of the slots are used at Packed-2, it will hold over 80 hours of recorded data.

ENHANCED MIDS FLIGHT RECORDER AT-A-GLANCE

- » Supports AUI or Ethernet 10Base-T
- » Provides discrete indicator of recording-in-progress status
- » Automatically connects to terminal and logs history of terminal status and state changes
- » Measures and records fractional time delta between network time and GPS time
- » Records over 80 hours of Packed-2 data at 50% TSDF on the removable 4 GB memory token
- » Includes software control and analysis utilities
- » Same size as previous model

Included Accessories

- » Two memory tokens that meet the environmental requirements
- » An adapter to read the memory tokens on your PC
- » A user's guide with information on installation and operation
- » A CD containing supporting software, including the Recording Configuration Editor (RCE) and the Viasat Analysis Support Tool (VAST) for MIDS. These tools allow the user to specify what data is to be recorded and to extract specific data from the recording files for subsequent analysis.

Ordering Information

PN: 1219204	Enhanced Flight Recorder Kit (includes MIDS-LVT Software)
PN: 1070963	MIDS JTRS Software (at no additional charge)
PN: 1170995	Additional PC Adapter (Memory Token USB Reader) Datakey DFX Memory Token (Qty 2)

Viasat Enhanced MIDS Flight Recorder

ANALYSIS

The recorded data is written in the “.raw” format and may be analyzed using the Viasat Analysis Support Tool (VAST) provided with the unit, or with other data link analysis systems such as MANDRIL, available from Lockheed Martin UK Integrated Systems & Solutions, Ltd.

TIME RECONCILIATION

To facilitate the reconciliation of recorded data (which carries a Link 16 time stamp) with TSPI data (which carries a GPS UTC time stamp), the MIDS Recorder accepts as input two 1 PPS signals. The fractional time difference between these two signals is measured with millisecond accuracy and periodically written to a unique file on the CF card.

SPECIFICATIONS

PHYSICAL CHARACTERISTICS

Size (excludes connectors & fasteners) (W x H x D)	6.375 x 4.906 x 1.906 in.
Weight (Approximate)	3 lb
Power	12 to 28 VDC, MIL-STD-704F

ENVIRONMENTAL (PER MIL-STD 810G)

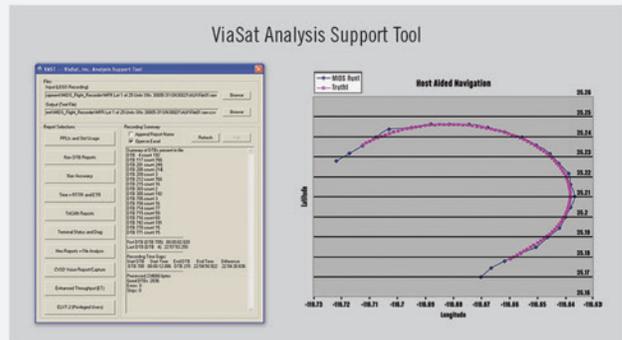
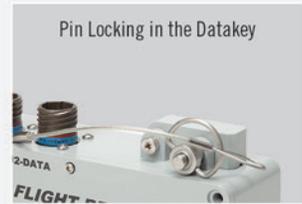
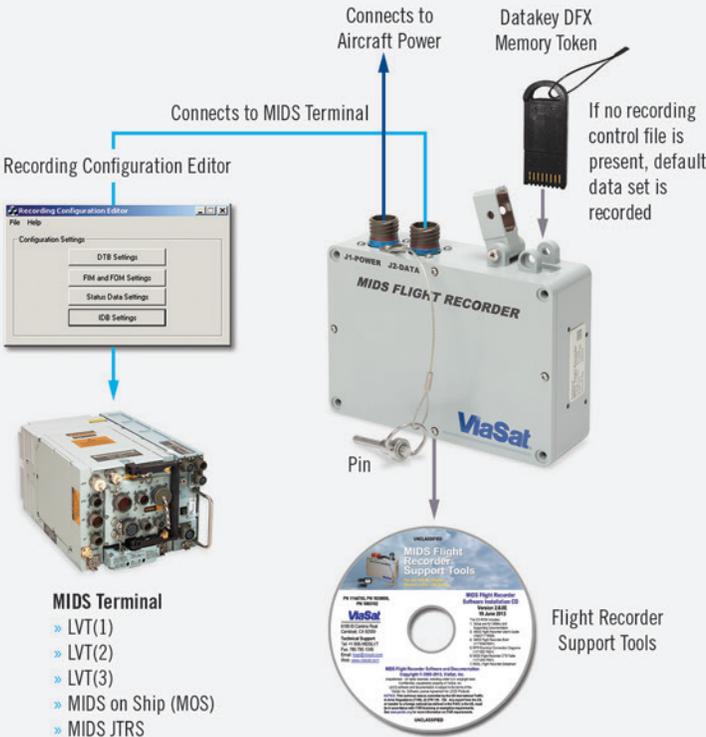
Operating Temperature	-20° to +71° C
Non-Operating Storage Temperature	-40° to +71° C

ENVIRONMENTAL (PER MIL-STD 810G) (CONTINUED)

Humidity	95% relative humidity Method 507.5
Altitude	62,000 ft @ -20° C; 55,000 ft @ +71° C Method 500.5
Explosive Atmosphere	58,000 ft per Method 511.5
Random Vibration	3 hr each axis Method 514.6
Gunfire Vibration	12 in from muzzle, sinusoidal over random, 15 min each axis Method 519.6
Shock	20 Gs per axis Method 516.6
Crash Hazard	40 Gs longitudinal, 20 Gs vertical, 15 Gs lateral Method 516.6
EMI	MIL-STD-461F

INTERFACES

MIDS Terminal Support Port	Ethernet or AUI, D38999 Connector
Two 1 PPS Timing Signals	ICD-GPS-060 MIDS CB-021-01M-01 Rev.8, Section 4.2.4.4.2
Discrete Signal	Recording Status
Power Source	28 V, D38999 Connector
Power Consumption	1.5 W
Removable Memory	4 GB



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