SUPPORTED PLATFORMS

Viasat’s Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT) was developed to meet the Link 16 requirements of all U.S. Forces and Coalition partners. MIDS-LVT(1) is designed for installation in fighter aircraft, including F-16s, F/A-18s, and the Eurofighter 2000. For customers who are using this terminal in a lab environment or ground station, we offer a range of support equipment to meet your needs for power, cooling, control, and cabling.

In addition to producing MIDS-LVT(1) terminals, we are the major producer of MIDS-LVT(2) and MIDS-LVT(11) terminals. MIDS-LVT(2) is designed to simplify installation in ground stations. This terminal is self-contained and integrates power, cooling, and control. All cables are included except the fill cable and host cable. We have a selection of these in stock as well as a mounting shelf for installation in a mobile rack or vehicle. We also offer integrated mobile solutions for the LVT(2)/(11).

The MIDS JTRS terminal from Viasat combines the network-centric communications capability of tomorrow with the real-time operating picture of today—all in one unit. This four-channel software-programmable radio delivers existing Link 16 and TACAN functionality, as well as three JTRS advanced networking waveforms and is “plug and play” with MIDS-LVT(1). We offer a range of products to meet your needs for power, cooling, control, and cabling.
The Viasat MIDS-LVT(1) Ruggedized Mobile System is an all-in-one, transportable case unit for the MIDS-LVT(1) terminal and its variants. Outfitted with all of the support equipment required to fully operate a MIDS-LVT(1) terminal, this mobile system alleviates all of the hardware challenges normally associated with getting your terminal integrated with your Link 16 host and operational in the network.

### MIDS-LVT(1) RUGGEDIZED MOBILE SYSTEM

#### SPECIFICATIONS

- **Input Power**
  - 120 VAC 60 Hz, 20 amp (IEC C20) 230/240 VAC 50 Hz, 10 amp (IEC C14)
- **Dimensions**
  - 18.1 x 22.5 x 34.5 in.
- **Weight (Approximate)**
  - 200 lbs

#### STANDARD CABLES

- W2, W3 and W7 Link 16 Voice/Data/Control
- W4 Crypto
- W10 & W11 Link 16 RF Cables
- RPS 280VDC Power Cable

#### STANDARD ACCESSORIES

- 120 VAC Input Power Cable, NEMA 5-20P to IEC C19 (specify if international cables are required)
- W1, W12 & W56 – LVT-1 RPS TO MT Cables
- BNC to BNC 1PPS Jumper Cable
- H-250 Handset
- User Guide

#### ORDERING INFORMATION

PN: 1265284        MIDS-LVT(1) Ruggedized Mobile Rack
The Viasat MIDS-LVT(2)/(11) Ruggedized Mobile System is a small, transportable case unit for the MIDS-LVT(2)/(11) terminal. Outfitted with all of the support equipment required to fully operate a MIDS-LVT(2)/(11) terminal, this mobile system alleviates all of the hardware challenges normally associated with getting your terminal integrated with your Link 16 host and operational in the network.

**MIDS-LVT(2)/(11) RUGGEDIZED MOBILE SYSTEM**

**SPECIFICATIONS**

| Input Power | 120 VAC 60 Hz, 20 amp (IEC C20) 230/240 VAC 50 Hz, 10 amp (IEC C14) |
| Dimensions | 18.1 x 22.5 x 34.5 in. |
| Weight (Approximate) | 200 lbs |

**STANDARD CABLES**

- W2, W3 and W7 Link 16 Voice/Data/Control
- W4 Crypto
- W10 & W11 Link 16 RF Cables
- PSA 28VDC Power Cable

**STANDARD ACCESSORIES**

- Input Power Cables 120 VAC NEMA 5-20P to IEC C19
- 230/240 VAC AS/NZ4417 to IEC C13
- 230/240 VAC CEE 7/7 EURO SCHUKO to IEC C13 (please specify if other international cables are required)
- BNC to BNC 1PPS Jumper Cable
- H-250 Handset
- 4x Ethernet Cables
- USB-A to USB-B Cable
- User Guide

**ORDERING INFORMATION**

PN: 1265285       MIDS-LVT(2)/(11) Ruggedized Mobile Rack
The Viasat MIDS JTRS Ruggedized Mobile System is a small, 8U transportable case unit offering a convenient way to operate your Link 16 system. Outfitted with all of the equipment you need for multi-channel operation, this mobile system can be used in any number of venues including operational, training, demonstrations, and testing.

### MIDS JTRS RUGGEDIZED MOBILE SYSTEM

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Input Power</th>
<th>120 VAC 60 Hz, 20 amp (IEC C20) 230/240 VAC 50 Hz, 10 amp (IEC C14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>18.1 x 22.5 x 34.5 in.</td>
</tr>
<tr>
<td>Weight (Approximate)</td>
<td>200 lbs</td>
</tr>
</tbody>
</table>

**STANDARD CABLES**

- W2, W3 and W7 Link 16 Voice/Data/Control
- W4 Crypto
- W15 & W16 CH2, CH3 & CH4 Voice/Data/Control
- W10 & W11 Link 16 RF Cables
- W17, W18, W19, W20 & W21 CH2, CH3 & CH4 RF Cables
- RPS 280VDC Power Cable

**STANDARD ACCESSORIES**

- Input Power Cables 120 VAC NEMA 5-20P to IEC C19
- 230/240 VAC AS/NZ4417 to IEC C13
- 230/240 VAC CEE 7/7 EURO SCHUKO to IEC C13 (please specify if other international cables are required)
- W105 & W112 – JTRS B & C Power
- BNC to BNC 1PPS Jumper Cable
- H-250 Handset
- 4x Ethernet Cables
- USB-A to USB-B Cable
- User Guide

**ORDERING INFORMATION**

PN: 1265286       MIDS JTRS Rugged Mobile Rack
The Viasat Multi-Platform Integrated Controller (MIC) provides you with all of the control and monitoring functions for the MIDS-LVT and MIDS JTRS terminals. The easy-to-operate web interface allows for more extensive options, including remote operation of the terminal over an IP network.

**MIDS-LVT(1) and MIDS JTRS Control & Monitoring**
- Terminal Power (On/Off)
- Crypto Hold (Standby)
- LTTI
- IFF Emergency
- Fail Decode
- Platform (IOIDENT) Configuration
- 1553 Address (RTAD)
- Crypto Zeroize

**MIDS-LVT(2)/(11) Control & Monitoring**
- Terminal Power (On/Standby)
- Blower Fail
- Air Filter Alarm
- Power Conditioner Fail
- Platform (IOIDENT) Configuration
- Crypto Zeroize

The MIC is intended to operate with the integrated AC ruggedized power supply, but also has the flexibility to work with a 9 to 36 VDC source. The controller includes a standard crypto fill connector interface on the front panel, allowing you to seamlessly connect to the MIDS-LVT(1) and MIDS JTRS non-standard D38999 connectors.

The Viasat Multi-Platform Audio Component (MAC) is also available for voice and speaker interface.

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**MULTI-PLATFORM INTEGRATED CONTROLLER (MIC)**

**SPECIFICATIONS**

- **Dimensions (W x H x D)**: 8.5 x 1.72 x 11 in. (½ width of 1U-high 19 in. rack)
- **Power**: 9 to 36 VDC (115 to 240 VAC adapter included)
- **Weight (Approximate)**: 5 lbs

**FEATURES**

- Designed for TEMPEST Red/Black Separation
- Standard RJ45 Host Interface Connection
- Standard Crypto Fill Connector Interface

**ACCESSORIES AND INTERFACE CABLES**

- W2–Link 16 Voice Interface
- W3–MIDS Host Interface (including breakouts for 1553)
- W4–Crypto Fill Cable
- W6/W7–MIDS Discrete Control (includes 1PPS ETR breakout 10 V 50 ohm BNC)
- Double Shielded Ethernet Cables (7 ft)
- Rugged AC Power Supply (AC to 12 VDC)

**ORDERING INFORMATION**

- PN: 1255399 MIDS-LVT(1)/JTRS Multi-Platform Integrated Controller (MIC)
- PN: 1255413 MIDS-LVT(2)/(11) Multi-Platform Integrated Controller (MIC)
The Viasat Multi-Platform Audio Component (MAC) is a rugged interface unit that provides independent or simultaneous dual-channel Link 16 voice (receive and transmit). It features a custom built 30 W quad-speaker system that has been specifically tuned to enhance audio quality.

The internal adjustable amplifiers can be configured through a web interface to operate any MIDS platform and is compatible with most headsets and handsets.

For the voice interface, the H-250 handset is recommended, which comes standard with the MAC system.

The MAC is intended to operate with the integrated AC ruggedized power supply, but also has the flexibility to work with a 9 to 36 VDC source.

The device offers a Push-to-Talk (PTT) deactivate function that mutes the speakers when the handset PTT is pressed.

All web interface functionality for the MAC requires Viasat’s Multi-Platform Integrated Controller (MIC), which is sold separately.

The MAC can either be used as a standalone unit or with Viasat’s MIDS-LVT and MIDS JTRS terminals (multiple configurations available).

**MULTI-PLATFORM AUDIO COMPONENT (MAC)**

**SPECIFICATIONS**

- **Dimensions (W x H x D)**: 8.5 x 1.72 x 11 in. 
  (½ width of 1U-high 19 in. rack)
- **Power**: 9 to 36 VDC (115 to 240 VAC adapter included)
- **Weight (Approximate)**: 5 lbs

**FEATURES**

- 30 W Speaker System
- Remote Monitoring & Control (MIC Required)
- 9 to 36 VDC Input

**ACCESSORIES AND INTERFACE CABLES**

- MIC/MAC Interface Cable
- H-250 Handset
- Rugged AC Power Supply (AC to 12 VDC)

**ORDERING INFORMATION**

- PN: 1255401       Multi-Platform Audio Component (MAC)
- PN: 1276365       MAC Standalone for MIDS-LVT(2)/(11) with Cable
- PN: 1276386       MAC Standalone for MIDS-LVT(1)/JTRS

*Note: STT must be used with MIC*
Do you need to control a terminal in the field without a lot of bulky equipment? Do you need to determine the condition of a terminal when the host has failed or is not connected? The LVT(1) Control Plug connects directly to the MIDS-LVT(1) J7 connector, providing switches for Power on/off and Standby on/off. Zeroize is accomplished simply by removing the connector. No longer than 5 in. in length, the device fits in your pocket.

The MIDS-LVT(1) Fail Decode LEDs on the end plate provide valuable terminal status information. These include the three most probable LRUs and/or SRUs responsible for a failure detected by the terminal during Startup Built in Test (SBIT), TDMA IBIT, or simultaneous TACAN/TDMA IBIT—even when no host is connected. For easy reference, the Control Plug comes with a pocket card containing the Fail Decode Matrix.

### MIDS-LVT(1) CONTROL PLUG, J7

**SPECIFICATIONS**

- **Diameter**: 1.38 in.
- **Length**: 4.78 in.
- **Weight**: 3.3 oz

**ORDERING INFORMATION**

PN: 1035372

Control Plug

Compatible with MIDS JTRS
The MIDS-LVT(1) Cooling Tray is a self-contained cooling and mounting device for one MIDS-LVT(1) and its corresponding Remote Power Supply (RPS). Made of lightweight, sturdy aluminum, the MIDS Cooling Tray provides the necessary 45 CFM of ambient cooling air to the MIDS terminal and RPS. The rear-mounted blower motor is totally enclosed within the air plenum to minimize noise. Guide channels are provided for both the MIDS-LVT(1) and the RPS along with three aircraft hold down devices. Positioning pins are mounted on the plenum wall to ensure proper airflow port alignment.

A stainless steel interlock switch activates the blower whenever a terminal is inserted. There is no danger of operating the terminal with no airflow, as the blower automatically starts as soon as the terminal is inserted.

The cooling tray is designed to provide access to the side panel of the terminal, making it easy to access to SRUs for testing and repair.

There are three versions of the MIDS Cooling Tray: one for U.S. power (115 VAC 60 Hz); one for European/Asian power (230 VAC 50 Hz); and one for multi channel power and cooling requirements. Specify Part Number 1027226 for the U.S. power option or Part Number 1027984 for the Euro/Asian power option.

The unit is rack mountable in a standard 19 in. wide rack configuration (requires a user-supplied shelf). A standard power cord with MIL D38999 connector is supplied and a mounting template is available upon request.

The MIDS JTRS Cooling Tray is sufficient for both core single-channel (Link 16, Voice, and TACAN) and multi-channel applications (Channels 2, 3, and 4).
The MIDS Power Unit (MPU) is a totally self-contained DC prime power source. This small unit is installed in a metal enclosure that is 10 7/8 x 18 1/2 x 8 3/4 in. and weighs just 33 lb. Its 1200 W power rating will supply the DC power of 280 VDC Differential (± 140 VDC) necessary to power two Viasat MIDS-LVT(1) terminals. The internal fans provide forced convection cooling. Separate DC Disconnect switches are provided for each terminal’s Remote Power Supply (RPS).

The MPU comes with all necessary cables. The AC input is supplied by an IEC type power cord. No user setup is required for the specified input voltage ranges.

The MPU-to-MIDS RPS interconnecting cable provides connections for powering two terminals.

The MPU contains two Ametek programmable DC power supplies that have been set to provide the correct output voltage and current. There is no danger of inadvertent voltage or current settings as this is preset and locked internally. The user simply connects the DC output cable to the MIDS RPS power supply, turns on the main power switch, and then turns on the corresponding DC Output switch. It couldn't be simpler! Transport case is available separately.

A 1U rack-mountable configuration of the 280 VDC Differential (±140 VDC) power supplies used in the MIDS Power Unit is also available. This configuration is for use with a single LVT(1) terminal and includes all cables. It interfaces to the Integrated Control Unit (with RPS On/Off).

MIDS-LVT(1)/JTRS POWER UNIT

SPECIFICATIONS

- Width: 10.875 in.
- Height: 8.75 in.
- Depth: 18.5 in.
- Weight (Approximate): 33 lb
- Electrical Input Power: 90 to 132 VAC, 47 to 63 Hz or Autoranging 180 to 264 VAC, 47 to 63 Hz

ORDERING INFORMATION

- PN: 1036848       MIDS-LVT(1) Power Unit
- PN: 1095983       MIDS 1U Rack-mountable Power Unit
- PN: 1037544       Transport Case

Front View

MIDS Rack-Mountable Power Unit

MIDS-LVT(1) Power Unit

Transport Case

Compatible with MIDS JTRS
The MIDS-LVT(2)/(11) Power Supply is a 1225 W Ametek XFR 35-35 DC power supply that has been pre-programmed to provide the correct output voltage and current. When the Master Power Switch is turned to ON, the Volt Meter on the front panel shows 28.0 ± 0.1.

Includes 2 cables: The Power Supply-to-LVT Power Supply Assembly (PSA) cable assembly and the AC power cable for 115 VAC 50/60 Hz U.S. operation. The AC power input 100 to 264 VAC 47 to 63 Hz is autosensing and an international plug adapter kit is available by request.

The MIDS-LVT(2)/(11) Rack-Mountable Shelf provides a sturdy and versatile design for mounting your MIDS-LVT(2) or LVT(11) in a 19 in. rack.

Highlights Include:
- Convenient: Fits your standard 19 in. rackmount environment with a 2U rackmount configuration.
- Flexible: Can be used in multiple configurations both rack and hardmounted.
- Easy: Comes fully assembled ready for installation.

### DC POWER SUPPLY FOR MIDS-LVT(2)/(11)

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Capacity</td>
<td>100 lb; 45.36 kg</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Standard 2U footprint</td>
</tr>
<tr>
<td>Width</td>
<td>16.5 in.; 419.1 mm</td>
</tr>
<tr>
<td>Height</td>
<td>3 in.; 72.2 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>20.3 in.; 515.62 mm</td>
</tr>
<tr>
<td>Weight (Approximate)</td>
<td>23 lb; 10.43 kg</td>
</tr>
<tr>
<td>Coating Finish</td>
<td>Gray Powder Coat</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

PN: 1303379
LVT(2)/(11) Rackmount Fixed Shelf
The MIDS-LVT(1) and MIDS JTRS are delivered without any cables. The terminal integrator will need to provide both the RPS to MT interconnect cables and the external cables including those for connecting to the main power, a tactical host, and a fill device.

The MIDS-LVT(2) is provided with the interconnect cables and both a DC and AC power cable. Cables that are not included with the terminal are the Fill Cable and Host Cable. Host cables are available to support all combinations of interfaces.

### MIDS-LVT(1) CABLES

**ORDERING INFORMATION**

- **PN: 1151280**  
  RPS to MT Cable Set (A, B, C Power & Prime)
- **PN: 1027656**  
  MIDS-LVT(1) Fill Cable, W4
- **PN: 1126722**  
  MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 1
- **PN: 1126781**  
  MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 26
- **PN: 1126782**  
  MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 27
- **PN: 1126783**  
  MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform I, RT Address 26
- **PN: 1130758**  
  MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform B, RT Address 1
- **PN: 1133842**  
  MIDS Host Cable Platform I 1553 with Support
- **PN: 1027658**  
  Cable Antenna A
- **PN: 1027569**  
  Cable Antenna B

### MIDS-LVT(2)/(11) CABLES

**ORDERING INFORMATION**

#### MIDS-LVT(2) and LVT(11) Cables

<table>
<thead>
<tr>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1027657</td>
<td>MIDS-LVT(2)/(11) Fill Cable, W4</td>
</tr>
<tr>
<td>1045956</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Ethernet</td>
</tr>
<tr>
<td>1045958</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Ethernet and Support Port</td>
</tr>
<tr>
<td>1057828</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Eicon X.25, Ethernet and Support Port</td>
</tr>
</tbody>
</table>

#### MIDS-LVT(2) and LVT(11) Host Cable Variants

<table>
<thead>
<tr>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1052414</td>
<td>MIDS JTRS J5 Host Cable</td>
</tr>
<tr>
<td>1052382</td>
<td>MIDS JTRS J12 Host Cable</td>
</tr>
<tr>
<td>1052380</td>
<td>MIDS JTRS Fill Cable</td>
</tr>
<tr>
<td>1048766</td>
<td>MIDS JTRS Host Cable with 1553 and Support Port Host Cable for Platform A, RT Address 1</td>
</tr>
<tr>
<td>1126394</td>
<td>MIDS JTRS Host Pass Through with Ethernet Cable</td>
</tr>
<tr>
<td>1126528</td>
<td>MIDS JTRS HMI Control Bus Cable</td>
</tr>
<tr>
<td>1047470</td>
<td>MIDS JTRS Discretes Cable</td>
</tr>
<tr>
<td>1052415</td>
<td>MIDS JTRS Link 16 Host Selection, Data Bus, and Control Cable</td>
</tr>
<tr>
<td>1052389</td>
<td>MIDS JTRS Discrete Cable</td>
</tr>
<tr>
<td>1052387</td>
<td>MIDS JTRS Suppression Cable</td>
</tr>
<tr>
<td>1052375</td>
<td>MIDS JTRS Voice Cable</td>
</tr>
</tbody>
</table>

The MIDS-LVT(1) and MIDS JTRS are delivered without any cables. The terminal integrator will need to provide both the RPS to MT interconnect cables and the external cables including those for connecting to the main power, a tactical host, and a fill device.

The MIDS-LVT(2) is provided with the interconnect cables and both a DC and AC power cable. Cables that are not included with the terminal are the Fill Cable and Host Cable. Host cables are available to support all combinations of interfaces.
Viasat offers customized MIDS cables, transport cases and other specialty items for the MIDS integrator and field service engineer. Items manufactured by other vendors such as RF terminators, attenuators, low pass filters, GPS receivers, and L-band antennas may also be purchased through Viasat.

We carry many of these items in inventory and can shorten the lead time significantly, thus shortening your schedule and reducing costs.

MIDS A NCILLARY ITEMS

ORDERING INFORMATION

| PN: 1221368  | MIDS-LVT(1) Transport Case |
| PN: 1221369  | MIDS-LVT(2) Transport Case |
| PN: 1042997  | MIDS-LVT(2) Filter Assembly |
| PN: 1048218  | MIDS-LVT(2) Voice Retrofit Kit |
| PN: 1059074  | MIDS Batteries (Set of 3) |
| PN: 1044621  | GPS with Network Time Server |
| PN: 1281929  | Portable Rate Generator, GPS |
| PN: 1078074  | Battery Insertion Torque Driver Kit |
| PN: 1027947  | Attenuator, 50 Ohm/150 W/30 dB Weinschel |
| PN: 1031935  | Low Pass Filter—Antenna A (LPFA) (N connector) |
| PN: 1055529  | Low Pass Filter—Antenna B (LPFB) (HN connector) |
| PN: 1027920  | 250 W Terminator/Load, Weinschel 1433-3 |
| PN: 1077756  | 50 Watt (5KW peak) RF Terminator/Load Weinschel (for N or HN) 1426-4 |
| PN: 1080378  | AUI Transceiver with 12V Power Pack (for use with MIDS-LVT Ethernet and Support Port) |
| PN: 1123107  | 1553 PC Express/Card and Cable |
| PN: 1123108  | 1553 PC Card and Cable Low Profile Assembly Kit |
| PN: 1123103  | 1553 PCMCIA Card |
| PN: 1123142  | 1553 PC Express/54 Card (for -40 to +85 C) and Cable |
The Viasat Support Port Interceptor (SPI) Kit provides access to the Support Port of the MIDS-LVT(1) and LVT(2) terminals. It is designed for use in operational settings where production cables do not provide access to this interface.

All of the J3 connections pass through the SPI except for those of the Support Port, which are brought out to the front panel. An Ethernet RJ45 connector permits connection by a PC system such as LEGS and a D38999 connector permits connection with a Viasat MIDS Flight Recorder. A switch determines which data path is active.

A rechargeable NI-MH battery contained within the unit provides power for the embedded AUI or for the Flight Recorder. The SPI will operate on the Ethernet for 18 hr between charges. A battery gauge is provided to indicate the battery charge status. The Flight Recorder will operate approximately 4 hr on one charge.

The kit is delivered in a ruggedized Hardigg Storm Case with all required cables and a Universal Smart Charger. The SPI can be purchased individually, or bundled with Viasat’s PC-based Support Port recording application (PN 1058388 bundled).

**SUPPORT PORT INTERCEPTORS (SPI)**

**SPECIFICATIONS**

- **Dimensions**: 4 x 4 x 4 in.
- **Power**: 12 V battery
- **Unit Weight**: 3 lb
- **Total Weight in Case**: 15 lb

**HIGHLIGHTS**

- Taps the interface between MIDS Terminal and its Host to provide access to the Support Port
- Ethernet 10Base-T Interface connects to PC
- Ethernet AUI Interface connects to MIDS Flight Recorder
- Embedded, rechargeable battery provides 18 hr of power for AUI transceiver and 4 hr of power for the Flight Recorder
- Portable, easy to use
- All cables included

**SPI KIT INCLUDES**

- SPI box
- Host cable
- Terminal cable
- MIDS Flight Recorder power and data cable
- Ethernet crossover cable
- Universal 12 V battery recharger

**ORDERING INFORMATION**

Contact Viasat
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 support port 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 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 imposed on 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 compact flash memory card socket interface provides for 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 card 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 card 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 Token will hold over 20 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.

**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.
RF NETWORKS

**SPECIFICATIONS**

Rackmountable Model

- **Dimensions**: 9 x 3.5 x 8 in.
- **Weight (Approximate)**: 5.5 lb

Portable Model

- **Dimensions**: 7 x 2 x 7 in.
- **Weight (Approximate)**: 3.5 lb

**ORDERING INFORMATION**

- PN: 1036073       Rack-Mountable Model
- PN: 1028051       Portable Model

The RF Network Unit permits multiple RF devices to be hubbed together in a network. It is intended for lab usage and operates over a frequency range of 0 to 2 GHz. There are 6 Type N female RF low level (1 W) connectors on the chassis and a variable step attenuator that ranges between 0 and 110 dB in 1 dB steps.

The RF Network has an approximate 14 dB insertion loss between ports, and is perfect for bench-top or field use. Included with the unit are four 50-Ohm terminations for use on unused RF ports. The RF Network is available in a 19-inch rackmount model and a portable model measuring just 7 x 7 x 2 in.; small enough to fit in a field service kit.

GPS NETWORK TIME SERVER

**SPECIFICATIONS**

- **Dimensions**: 1U x 19 in. x 12 in.
- **Relative Humidity**: 0 to 95% (non-condensed)
- **Power Requirements**: 100 to 260 VAC <10 W

**HIGHLIGHTS**

- GPS receiver provides 1 PPS signal suitable for use as ETR to MIDS, MIDS JTRS, and STT terminals. GPS antenna and cable included.
- GPS Tracking: 12 parallel channels
- Acquisition Time: <1.5 min (warm start)
- Accuracy (1 PPS): <20 ns
- Holdover: <0.2 micro seconds/day (Rb opt)
- 100/10Base-T Ethernet
- NTP Telnet, TCP/IP, FTP
- Monitor/Control I/F
- Alarm indicator and output
- GPS Antenna and 100 ft cable included
- 1 PPS: 10 V, 5 V and 5 V differential

**ORDERING INFORMATION**

- PN: 1044621       pft GPS with Network Time Server

RF ANTENNA CABLES

**ORDERING INFORMATION**

- PN: 1003220       RF Antenna Cable, 50 ft Heliax
- PN: 1100541       RF Antenna Cable, 50 ft RG-214 double-shielded

RF Antenna Cable, Outdoor NM-NM 50 ft Heliax with 2.34 dB of loss per 100 ft DC-18 GHz, 1900 W max.

RF Antenna Cable, Outdoor NM-NM 50 ft RG-214 double-shielded with 8 dB of loss per 100 ft.
Be prepared! Armed with the 5 lb Viasat Portable Antenna, a field service engineer, training instructor, or test engineer can conduct limited ground-to-air tests in the field. This L-band blade antenna is delivered with a 52 in. tripod and features a quick-connect mounting shoe that holds the antenna plate. It can be used in testing related to all L-band applications and is packaged in an expandable, zippered nylon bag.

**PORTABLE ANTENNAS**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Portable Antenna</th>
<th>Dimensions</th>
<th>11 x 1.3 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>2 lb</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Portable Antenna (Tripod-Mounted)</th>
<th>Dimensions</th>
<th>24 x 8 in. (in bag)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>5 lb</td>
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</tbody>
</table>

**HIGHLIGHTS**

<table>
<thead>
<tr>
<th>Portable Antenna</th>
<th>L-band</th>
<th>960 to 1215 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200 W</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+2 dBi nom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type N Female RF Connector</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portable Antenna (Tripod-Mounted)</th>
<th>L-band</th>
<th>960 to 1200 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>250 W at 50,000 ft</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lightweight metal tripod</td>
<td></td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

| PN: 1230323       | Portable Antenna                |
| PN: 1058390       | Portable Antenna (Tripod-Mounted) |

An L-Band antenna is required to transmit Link 16 over the air. Viasat recommends the high gain XVO 7-960-1215/1120 omni antenna made by European Antennas. This antenna covers the Link 16 band, 960 to 1215 MHz, and has a 7 dBi gain, nearly doubling the range of a system. Receive sensitivity—usually the limiting factor for communications with distant airborne platforms—is increased significantly. The antenna is lightweight (1.7 kg) and has an alloy base plate with 4 stainless steel bolts, a 1 in. offset spigot, and M16 Stainless Steel bolt and washers. Mounting pole and guy wires are not included.

**L-BAND GROUND ANTENNA**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>40 x 3 in.; 1029 x 76.2 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.75 lb</td>
</tr>
</tbody>
</table>

**HIGHLIGHTS**

<table>
<thead>
<tr>
<th>L-band</th>
<th>960 to 1215 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>7 dBi</td>
</tr>
<tr>
<td>Operating</td>
<td>-40˚ to +50˚ C</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

| PN: 1044620       | L-band Ground Antenna |

Link 16 Environment Gateway Simulator (LEGS) is an essential terminal support tool. Prime developers use this software in the integration of MIDS terminals, and ground facilities and field service engineers rely on the LEGS application for terminal troubleshooting and maintenance. The tool is also used by test facilities for Link 16 system performance measurement and evaluation, and by instructors for MIDS training.

A low-cost version (LEGS-Lite) that does not include the scenario generation or situation display capabilities is also available. The J LEGS version of the application implements the JTRS Platform A interface and is available to U.S. customers.

Viasat can tailor LEGS Remote Interface Modules (RIMs) to support your special requirements. We have developed RIMs for GPS testing, ETR testing, OTAR testing, voice testing, and navigation testing. And, we have an API to support automated testing using products such as LabView and VEF-Pro. An ICD is available by special request. If you have special needs, let us know.

Licenses are available for installation on customer-furnished equipment.
Viasat’s Link 16 Flight-line Tool (LiFT) software is designed to support “go/no-go” testing and troubleshooting of Multifunctional Information Distribution System Low Volume Terminals (MIDS-LVT) in a field environment. The LiFT application is available installed on a tablet PC or as a software package for customers who want to install the LiFT application on their own equipment. This software is intended for use by technicians and allows the user to read, reconfigure, update, and monitor terminal parameters. Data is provided in dynamic graphical displays.

**LINK 16 FLIGHT-LINE TOOL (LiFT)**

**HIGHLIGHTS**

- Obtain Terminal Status: IPF Fail, TDMA Rcv/Tx Fail, TDMA Degraded, Thermal Overload, and Sanitization Confirmation
- Initiate Built-In Test (IBIT)
- View SDU alert status
- View position data
- View cockpit ID
- Modify a limited number of settings: Set/Change CCPD, STN, NTR, Time, Tx Mode, Output Power Mode, TACAN Settings, and Voice Channel
- Load an Initialization file
- Start net entry
- Participate in a network
- View 12 sec counters
- Observe received RF messages by type
- Exercise TACAN function
- Sanitize terminal for shipment

**ORDERING INFORMATION**

- PN: 1194824     LiFT Handheld Kit
- PN: 1043058     Software License and CD
AMALGAMATED REMOTE MANAGEMENT SYSTEM (ARMS)

HIGHLIGHTS

» Enable distributed data collection by implementing a multi-homed monitoring system
» Allows coordinated network analysis from multiple viewpoints
» Provides a synthesized analysis of the network architecture
» Plug-n-Play capability—no changes to the existing system of terminals should be necessary
» Works with all MIDS and JTRS terminals
» Scalable with no preset limits for terminal connections
» Provides up-to-date system-wide status with drill-down capability of terminal BIT
» Functions as an anomaly-event-driven, operator-alert-based interface to facilitate expeditious detection and correction of network problems

ARMS IS BUILT WITH THREE FUNCTIONAL ARCHITECTURAL PIECES

» Link 16 Interface Processes (LIP)
» Centralized Analysis Process (CAP)
» ARMS User Interface (AUI)

ORDERING INFORMATION

PN: 1086429       ARMS master control and two terminals at remote site
PN: 1086432       ARMS annual software update subscription
PN: 1129283       ARMS FLEXOR feature

ARMS integrates multiple views of a network that is maintained over a large geographical area and locked onto GPS time. A delayed synchronization capability on a single terminal is not required to detect unauthorized time slot reuse; the network nodes themselves perform this function for any units within site of more than one ground station. ARMS operates over a widely distributed geographical installation and accepts received data from each terminal node, integrating this data and analyzing it to detect and identify anomalies.

ARMS is a distribution system that connects to each remote terminal to obtain the tactical picture as seen at that location. From this information it builds a multi-terminal database that is analyzed for discrepancies.
ELIMINATE THE NEED FOR MULTIPLE
LINK 16 TERMINALS

TOES is a multi-terminal network simulator providing a scalable software emulation of a Link 16 network.

TOES leverages current Viasat Link 16 development efforts including software for the Small Tactical Terminal (STT), the Amalgamated Remote Management System (ARMS), and the Navigation Testing Set.

TERMINAL OPERATIONAL ENVIRONMENT SIMULATOR (TOES)

HIGHLIGHTS

- Simulates multiple Link 16 terminals
- Employs actual network designs and platform loads
- Regulates bandwidth and provides accurate time slot usage
- Supports stacked nets and contention access
- Implements paired slot relay
- Simulates simple RF Line-of-Sight between terminals
- Provides Platform-J Host Interface for each simulated terminal
- Simulates terminal latency
- Simulates TOA (Range) Delay between pairs of hosts

USE TOES TO

- Test and validate network designs
- Send tactical data through multiple units from a single Platform-D or Platform-J interface for use with 3rd party battle-space simulator tools
- Evaluate new data exchanges including those using stacked nets
- Create a test environment for network monitoring and management systems
- Create an operational environment for training Link 16 network managers

SOFTWARE ARCHITECTURE

- TOES User Interface
- TOES Engine Control
- Unit Position Truth Data
- Terminal Host Interfaces

ORDERING INFORMATION

PN: 1098182       TOES
TDL TECHNICAL SUPPORT AND TRAINING

» Each course employs a combination of dialectic lecture and hands-on laboratory.
» The typical percentage breakdown of lecture/lab hours is 40/60.
» Practical lab sessions reinforce all course instruction, providing the student with hands-on experience with MIDS-LVT and LEGS products.
» The lab sessions develop the skill and knowledge of each student for safe and efficient operation of MIDS-LVT and efficient use of LEGS software.

BENEFITS OF ATTENDANCE

The Viasat MIDS-LVT and/or LEGS training course will provide the following:
» Overview of Link 16
» Overview of MIDS-LVT
» Basic understanding of the LEGS software architecture
» Thorough understanding of LEGS functions and applications
» Knowledge in the safe and efficient operation of MIDS-LVT
» Ability to employ LEGS software to control the MIDS-LVT
» Ability to use LEGS software to easily isolate faults on the MIDS-LVT

ADDITIONAL COURSE INFORMATION

Schedule
Training courses are available for as short as 1 day and as long as 2 weeks (depending on the material to be covered). Class size is normally limited to 12 students.
Contact us for individual pricing information.

Location
The preferred training location is Viasat’s Carlsbad facility located at 6155 El Camino Real, Carlsbad, CA 92009

Note
Training at the customer’s facility requires the provision of terminals and support equipment as Customer Furnished Equipment.
Classroom instruction, materials and lab procedures are created from testing data and customer feedback.
COURSE OFFERINGS
Viasat offers a variety of training courses related to Link 16 and the operation of the MIDS, MIDS JTRS, and the STT¹ terminals. We also offer training on our software products including LEGS, ARMS, and TOES². Course outlines are available upon request. Tailoring of the standard syllabus to meet specific customer needs is possible—let us know your requirements. The training courses listed below are offered at group rates. We also offer courses at individual rates. Contact Viasat for further information.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSAT 101</td>
<td>MIDS Familiarization (Short Course)</td>
<td>1-day training course on MIDS-LVT</td>
</tr>
<tr>
<td>VSAT 102</td>
<td>LEGS Familiarization (Short Course)</td>
<td>1-day training course on Viasat’s LEGS host</td>
</tr>
<tr>
<td>VSAT 103</td>
<td>Link 16 Familiarization (Short Course)</td>
<td>2-day training course on the introduction to Link 16</td>
</tr>
<tr>
<td>VSAT 104</td>
<td>MIDS and LEGS Familiarization</td>
<td>3-day training course covering the use of LEGS and MIDS operation</td>
</tr>
<tr>
<td>VSAT 105</td>
<td>MIDS Specifications and Documentation (Short Course)</td>
<td>1-day training course on MIDS ICDs and SSS</td>
</tr>
<tr>
<td>VSAT 106</td>
<td>Link 16 Flight-line Tool (LiFT)</td>
<td>2-day training course on Viasat’s LiFT</td>
</tr>
<tr>
<td>VSAT 106A</td>
<td>LiFT Training</td>
<td>2-day training course on Viasat’s LiFT</td>
</tr>
<tr>
<td>VSAT 201</td>
<td>Introduction to MIDS/Link 16 for Beginners</td>
<td>5-day training course introducing Link 16 and MIDS (priced individually for entire week)</td>
</tr>
<tr>
<td>VSAT 202</td>
<td>MIDS/LEGs: Introduction to Operations and Maintenance</td>
<td>5-day training course on MIDS-LVT, LEGS and the maintenance of the MIDS-LVT</td>
</tr>
<tr>
<td>VSAT 204</td>
<td>MIDS/LEGs: Operations and Maintenance for the Field Service Engineer</td>
<td>7-day training course focusing on the field level maintenance of the MIDS-LVT to include SRU removal</td>
</tr>
<tr>
<td>VSAT 205</td>
<td>MIDS JTRS: Operations and Maintenance</td>
<td>(Available to MIDS-JTRS Users) 5-day training course focusing on MIDS JTRS operations and maintenance</td>
</tr>
<tr>
<td>VSAT 206</td>
<td>ARMS: Link 16 Network Management</td>
<td>3-day training course focusing on ARMS Link 16 Network management software</td>
</tr>
<tr>
<td>VSAT 207</td>
<td>TOES: Terminal Operational Environment System</td>
<td>2-day training course that focuses on the fundamentals, set-up, and operation of TOES in a simulated environment. Course can be tailored to customer requirements</td>
</tr>
<tr>
<td>VSAT 208</td>
<td>MIDS Navigation Training</td>
<td>3-day training intended for programmers and test analysts responsible for navigation implementation and test verification</td>
</tr>
<tr>
<td>VSAT 209</td>
<td>STT Operations</td>
<td>3-day training focusing on user’s Link 16 knowledge and to prepare them to use the STT for dual channel operations</td>
</tr>
<tr>
<td>VSAT 210</td>
<td>VLATS Training</td>
<td>5-day training focusing on the fundamentals and principles of the VLATS (Available to VLATS Users)</td>
</tr>
</tbody>
</table>

¹STT = Small Tactical Terminal
²TOES = Terminal Operational Environment Simulator

CONTACT
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