Support Equipment
For MIDS-LVT, STT, and MIDS JTRS Terminals

MIDS-LVT, STT, AND MIDS JTRS TERMINALS PROVIDE SECURE COMMUNICATIONS AND POSITIVE FRIENDLY ID

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 Small Tactical Terminal (STT) KOR-24, co-developed by ViaSat and Harris, is a two-channel radio designed to meet the needs of users who have Size, Weight, and Power (SWaP) constraints but need the information available on Link 16 networks and/or tactical VHF/UHF. For customers using the STT in a lab or ground environment, we offer an off-the-shelf, rack-mountable Control and Interface Unit that will provide power, cooling, control, and cabling in an integrated, rackmount, turnkey solution.

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.
ViaSat’s MIDS-LVT(1) Integrated Control Unit is designed to provide basic control and interface functions for the MIDS-LVT(1) terminal in a rackmount configuration.

The following functions are supported:

» IFF Emergency
» RPS On/Off
» Off/On/Standby
» Long Term Transmit Inhibit
» External Time Reference Input, 50 Ohms
» DS-101 Fill Port
» Zeroize
» Support Port
» Host Ethernet Interface

Indicators are provided for the Fail Decode discretes and for the transmit/receive indicators of the embedded AUI transceivers required by the terminal’s Ethernet and Support Port interfaces. The two MIL-STD-1553 Data Bus Couplers required for this Host interface are also embedded within the unit. The BJ-77 connectors for the Data Bus Stub outputs are located on the front and rear panels, allowing monitoring of the 1553 bus as well as a direct 1553 connection to the host.

Switches are provided for the I/O identification allowing the unit to be used with all platform types. The RT address is preset to 1.

Connections on the rear panel include:

» J3 Connector for MIDS Host Interface (cable included)
» J4 Connector for DS-101 Fill (cable included)
» J7 Connector for MIDS Control (cable included)
» Additional 1553 Stub A and Stub B Jacks
» TACAN Beacon Audio Output Signal
» Voice Push-to-Talk Input (compatible with ViaSat’s Voice Control Unit)
» 12V Power for the AUI Transceivers (included)

This unit is usually ordered with the 1U MIDS Power Unit, PN 1095983 which includes a 6 ft RPS Main Power Cable that connects to the ICU. If these are not ordered together, an unterminated 6 ft RPS Main Power Cable is provided with PN 1097959 for use with customer furnished power supply (+/-140 VDC or 115 V 3 Ph 400 Hz). This is used in conjunction with RPS Power On/Off switch on front panel to control RPS primary power.

Dual purpose MIDS-LVT(2)/MIDS JTRS version is available.

**MIDS-LVT(1) INTEGRATED CONTROL UNIT (ICU)**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Panel Width</td>
<td>19 in.</td>
</tr>
<tr>
<td>Height</td>
<td>3.5 in.</td>
</tr>
<tr>
<td>Depth</td>
<td>10 in.</td>
</tr>
<tr>
<td>Weight (Approximate)</td>
<td>6.5 lb</td>
</tr>
<tr>
<td>Input Power</td>
<td>12 VDC</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

PN: 1097959  Integrated Control Unit (ICU)
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.

The MIDS Host Interface Unit provides access to the 1553, Ethernet, and Support Port interfaces. The AUI transceivers required to convert to the Ethernet RJ45 connector are embedded within the unit. An external 1553 bus coupler is required. The Platform Type is selectable; the RT Address is preconfigured to 1. The host cable connects to J3 of the MIDS terminal and is detachable. Power required by the AUI is provided through a 12 V Power Supply, which is included. The unit and all cables are delivered in a padded case. A reference card for the I/O Configuration switch settings are included.
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 two versions of the MIDS Cooling Tray; one for U.S. power (115 VAC 60 Hz) and one for European/Asian power (230 VAC 50 Hz). 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.

<table>
<thead>
<tr>
<th>MIDS-LVT(1) COOLING TRAY INTEGRATED CONTROL UNIT (ICU)</th>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 16.70 in.</td>
<td>Height: 9.95 in. (from table top surface)</td>
</tr>
<tr>
<td>Height: 9.95 in.</td>
<td>Weight (Approximate): 35 lb (unloaded)</td>
</tr>
<tr>
<td>Depth: 25.15 in.</td>
<td></td>
</tr>
<tr>
<td>Electrical Input Power</td>
<td>Noise Level: 68 dBA at 3 ft</td>
</tr>
<tr>
<td>115 VAC Cooling Tray</td>
<td></td>
</tr>
<tr>
<td>100 to 130 VAC, 60 Hz, Single Phase, 200 W</td>
<td></td>
</tr>
<tr>
<td>230 VAC Cooling Tray</td>
<td></td>
</tr>
<tr>
<td>200 to 250 VAC, 50 Hz, Single Phase, 200 W</td>
<td></td>
</tr>
<tr>
<td>Cooling: None required</td>
<td></td>
</tr>
<tr>
<td>ORDERING INFORMATION</td>
<td></td>
</tr>
<tr>
<td>MIDS-LVT(1) Cooling Tray</td>
<td></td>
</tr>
<tr>
<td>PN: 1027226 115 VAC, 60 Hz</td>
<td></td>
</tr>
<tr>
<td>PN: 1027984 230 VAC, 50 Hz</td>
<td></td>
</tr>
<tr>
<td>PN: 1037542 Transport Case</td>
<td></td>
</tr>
</tbody>
</table>

Compatible with MIDS JTRS
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, plugs the MPU into a standard U.S. or Universal voltage source, 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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>10.875 in.</td>
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<tr>
<td>Height</td>
<td>8.75 in.</td>
</tr>
<tr>
<td>Depth</td>
<td>18.5 in.</td>
</tr>
<tr>
<td>Weight (Approximate)</td>
<td>33 lb</td>
</tr>
<tr>
<td>Electrical Input Power</td>
<td>90 to 132 VAC, 47 to 63 Hz or Autoranging 180 to 264 VAC, 47 to 63 Hz</td>
</tr>
</tbody>
</table>

#### ORDERING INFORMATION

- PN: 1036848       MIDS-LVT(1) Power Unit
- PN: 1095983       MIDS 1U Rack-mountable Power Unit
- PN: 1037544       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 Slide Shelf provides a sturdy and versatile design for mounting your MIDS-LVT(2) or LVT(11) in a 19 in. rack. The heavy duty slide mounts are fabricated with stainless steel. The body of the shelf is structural aluminum with a gray powder-coat finish. The side rails are removable to allow the unit to be hardmounted.

Highlights Include:

» Rugged: Heavy duty slide mounts with 1/4 in. aluminum construction makes this mount suitable for the most rugged environments.

» 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.

The MIDS-LVT(2)/(11) Rack Mountable Slide Shelf

**SPECIFICATIONS**

- **Weight Capacity**: 100 lb; 45.36 kg
- **Form Factor**: Standard 2U footprint
- **Width**: 16.5 in.; 419.1 mm
- **Height**: 3 in.; 76.2 mm
- **Depth**: 20.3 in.; 515.62 mm
- **Weight**: 23 lb; 10.43 kg
- **Coating Finish**: Gray Powder Coat

**ORDERING INFORMATION**

PN: 1076004       LVT(2)/(11) Rackmount Slide Shelf

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 Slide Shelf provides a sturdy and versatile design for mounting your MIDS-LVT(2) or LVT(11) in a 19 in. rack. The heavy duty slide mounts are fabricated with stainless steel. The body of the shelf is structural aluminum with a gray powder-coat finish. The side rails are removable to allow the unit to be hardmounted.

Highlights Include:

» Rugged: Heavy duty slide mounts with 1/4 in. aluminum construction makes this mount suitable for the most rugged environments.

» 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.

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 Slide Shelf provides a sturdy and versatile design for mounting your MIDS-LVT(2) or LVT(11) in a 19 in. rack. The heavy duty slide mounts are fabricated with stainless steel. The body of the shelf is structural aluminum with a gray powder-coat finish. The side rails are removable to allow the unit to be hardmounted.

Highlights Include:

» Rugged: Heavy duty slide mounts with 1/4 in. aluminum construction makes this mount suitable for the most rugged environments.

» 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.
ViaSat’s MIDS-LVT(1) or LVT(11) Voice Control Unit with Headset is designed to provide basic control and interface functions for the MIDS-LVT voice capability. Order PN 1078843 for MIDS-LVT(1); PN 1078822 for MIDS-LVT(11). This model of VCU employs the David Clark H10 series headset which features an inline Push-to-Talk switch, volume control knobs, gel ear seals, and 23 dB of noise reduction. A front panel switch selects between headset and speakers.

The Voice Control Unit for MIDS-LVT(11) includes a User Guide, 12 VDC power supply, and a MIDS-LVT(11) cable harness replacing the H-250 compatible harness delivered with the terminal.

ViaSat’s MIDS-LVT(1) Voice Control Unit (VCU) with Microphone is designed to provide basic control and interface functions for the MIDS-LVT voice capability. Order PN 1048346 for LVT(1); PN 1060167 for LVT(11).

The following functions are supported:

» Speakers for Voice 1 and Voice 2
» Shure Push-to-Talk Microphone
» Transmit Channel Select
» Power On/Off Switch and Indicator
» Volume Control
» Headset Jack

This model of the VCU employs the handheld Shure Push-to-Talk Microphone and contains a headset jack. Use of the headset jack disables the speaker.

The Voice Control Unit for MIDS-LVT(1) includes a User Guide, 12 VDC power supply, an 8 ft VCU-to-Main Terminal interface cable. The PTT end of this cable is compatible with ViaSat’s MIDS-LVT(1) Integrated Control Unit.

The Voice Control Unit for MIDS-LVT(11) includes a User Guide, 12 VDC power supply, and a MIDS-LVT(11) cable harness replacing the H-250 compatible harness delivered with the terminal.
The MIDS-LVT(1) is 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.

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**MIDS-LVT(1) CABLES ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1027027</td>
<td>RPS to MT Cable Set (A, B, C Power &amp; Prime)</td>
</tr>
<tr>
<td>1027656</td>
<td>MIDS-LVT(1) Fill Cable, W4</td>
</tr>
<tr>
<td>1126722</td>
<td>MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 1</td>
</tr>
<tr>
<td>1126781</td>
<td>MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 26</td>
</tr>
<tr>
<td>1126782</td>
<td>MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform A, RT Address 27</td>
</tr>
<tr>
<td>1126783</td>
<td>MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform I, RT Address 26</td>
</tr>
<tr>
<td>1130758</td>
<td>MIDS-LVT(1) with 1553 and Support Port Host Cable for Platform B, RT Address 1</td>
</tr>
<tr>
<td>1027660</td>
<td>Customized Host Interface Cable, W3</td>
</tr>
</tbody>
</table>

**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 and Support Port</td>
</tr>
<tr>
<td>1045958</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Ethernet</td>
</tr>
<tr>
<td>1057828</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Eicon X.25, Ethernet and Support Port</td>
</tr>
<tr>
<td>1057830</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Eicon X.25</td>
</tr>
<tr>
<td>1057831</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Eicon X.25 and Ethernet</td>
</tr>
<tr>
<td>1057832</td>
<td>MIDS-LVT(2)/(11) J3 Host Cable with Eicon X.25 and Support Port</td>
</tr>
</tbody>
</table>
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 ANCILLARY ITEMS

**ORDERING INFORMATION**

- **PN: 1055349**  
  MIDS-LVT(1) Transport Case
- **PN: 1035021**  
  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**  
  Valpey-Fischer GPS with Network Time Server
- **PN: 1078074**  
  Battery Insertion Torque Driver Kit
- **PN: 1027658**  
  Antenna A RF Cable, W10
- **PN: 1027659**  
  Antenna B RF Cable, W11
- **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

- PN: 1058387       Support Port Interceptor
- PN: 1221365       Portable Case
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.
The ViaSat STT Control and Interface Unit (CIU) is a rack-mountable enclosure providing all power, cooling, cabling, and control functions needed to operate the STT in a lab environment. Setup is simple; insert the STT directly into the integrated fan tray and lock it in place, connect the CIU cables to the STT, then turn the master power on/off switch on and you’re ready to begin operations.

### STT CONTROL AND INTERFACE UNIT (CIU)

**SPECIFICATIONS**

- **Dimensions**: 10.5 x 19 x 17 in. (H x W x D) (size excludes connectors and fasteners)
- **Weight (Approximate)**: 18 lb
- **Electrical Input Power**: 100 to 264 VAC, 47 to 63 Hz, 315 W (max)

**Front Panel Controls and Interfaces**

A Harris KDU mounts on the front panel of the CIU. Separate power on indicators are provided for Channel 1 (UHF/VHF or Link 16) and Channel 2 (UHF/VHF). Link 16 communications health is identified by a dedicated indicator. Front panel connectors and switches include:

- Ethernet Host (RJ-45)
- Zeroize
- USB (B)
- LTTI
- DTE Waveform (DB 25)
- IFF Emergency
- Red Console (DB 9)

**Rear Panel Connections**

The rear panel provides an EMI-filtered AC Power Input for the embedded 28 V power supplies, an input connector for the 1 pulse per second external time reference, and a 28 VDC auxiliary input for external power. Available maintenance ports and BNC connectors for the Link 16 differential discrete:

- Message Transmit (output pulse)
- Pulse Transmit (output pulse)
- Receiver Suppression (input pulse)
- IPF Monitor Suppression (input pulse)
- Transmit Suppression (input pulse)

**ORDERING INFORMATION**

PN: 1115296  
STT Control and Interface Unit

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**STT CONTROL AND INTERFACE PANEL (CIP)**

**HIGHLIGHTS**

The ViaSat STT CIP is a rack mountable enclosure for use in a standard 19 in. rackmount environment. The STT CIP provides mounting provisions, cabling, and control functions and status indicators needed to operate the STT. Setup is simple; connect the CIP to 28V DC power, connect the external cable set (provided) to both the CIP and STT, then turn the master power on/off switch on and you’re ready to begin operations.

**Front and Rear Panel Controls and Interfaces**

A customer provided Harris KDU can be connected to the front panel of the CIP. Separate POWER ON indicators are provided for Channel 1 (UHF/VHF or Link 16) and Channel 2 (UHF/VHF). Front and rear panel connectors and switches include:

- Ethernet Host (RJ-45)
- Zeroize
- USB (A)
- LTTI
- Ethernet Host (RJ-45)
- DTE Waveform (DB 25)
- IFF Emergency
- Red Console (RJ-45)
- Channel 1 & 2 power on/off

**External Cables Provided**

- CBL ASSY, W1 EXTERNAL
- CBL ASSY, W2 EXTERNAL
- CBL ASSY, W3 EXTERNAL
- CBL ASSY, W4 EXTERNAL
- CBL ASSY, W5 EXTERNAL
- CBL ASSY, W10 EXTERNAL
- CBL ASSY, W20 FAN POWER
- CBL ASSY, W60 CIP POWER

**ORDERING INFORMATION**

PN: 1186823

See datasheet STT Support Equipment for more information
MOVE OUT/JUMP OFF (MOJO) KIT

SPECIFICATIONS

Dimensions (W x H x L)
- Transit Configuration 22.5 x 16.4 x 34.5 in. (with front and rear lids installed)
- Operational Configuration 22.5 x 16.4 x 28.5 in. (with front and rear lids removed)

Weight
- Transit 180 lb
- Operational 150 lb

Electrical Input Power
- AC Input 80 to 265 VAC, 47 to 800 Hz
- DC Input +9 to +30 VDC

An integrated system for creating a mobile air/ground communication gateway. This system includes a ruggedized rack-mount transit case, integrated power DC/DC 600 W power supply with main power on/off, 20 W VHF/UHF amplifier, chassis cooling fan, LED Indicators for power, mounting and power provisions for a ruggedized DTECH Labs TXC-4 server/router, and power/host interface and mounting provisions for a RT-1720/RT-1915 EPLRS/SADL radio.

FRONT PANEL CONTROLS AND INTERFACES

The kit’s front panel contains separate LED status indicators for main power, STT channel 1 and 2, power and UHF amp power. In addition, the front panel houses all the necessary interfaces to support STT operation. These interfaces are provided by the following connectors/switches:
- STT CH1 and CH2 power on switches
- STT Link 16 Long Term Transmit Inhibit (LTTI) switch
- STT zeroize switch
- STT VHF/UHF amp power on switch
- DC main power connector (D38999)
- STT CH1 and CH2 KDU connectors (Fischer-type that accommodates standard external KDU cable)
- STT CH1 and CH2 audio/fill connectors (standard GC-type that accommodates standard crypto fill devices and H-250 handsets)
- STT CH1 and CH2 Ethernet and console connectors (RJ-45)
- STT L16 RF connector (TNC)
- STT VHF/UHF connector (TNC)
- STT DTE waveform connector (DB-25F)
- EPLRS/SADL Ethernet connector (RJ-45)

ORDERING INFORMATION

PN: 1218485 MOJO CR V2 with Wideband Enabled STT
PN: 1218486 MOJO CR V2 with Tactical Router
PN: 1218487 MOJO CR V2 with Wideband Enabled STT and Tactical Router
Do you need to control a terminal in the field without a lot of bulky equipment? The ViaSat ruggedized STT Control Plug Set contains 3 control plugs to interface with the STT J1/J2/J3 connectors. The J1 and J2 control plugs allow host interface via Ethernet, Serial or USB using standard RJ-45 and USB Mini-B cables/connectors. The J3 control plug allows Channel 1 and Channel 2 On/Off and LTTI.

**STT CONTROL PLUG, J1/J2/J3**

**ORDERING INFORMATION**

PN: 1232632  Control Plug (Contains 3 Plug Set)

**STT CABLES AND ACCESSORIES (AVAILABLE SEPERATELY)**

**ORDERING INFORMATION**

**Cables**

- PN: 1132441  STT Link 16 RF Cable Set
  - 1 meter cables for antenna A and antenna B terminating in SMA(m) connector, suitable for interfacing to other connectors
- PN: 1142080  STT Fan tray power cable (6 foot with banana plugs)
- PN: 1134661  STT audio/fill cable

**Kits**

- PN: 1142390  STT Field Integration Kit Cables and signal breakout boxes packaged in a single, portable case
- PN: 1124366  STT Mating Connector Kit
  - Set of Mating Connectors for the STT: J1, J2, J3, J4, J5, J6, J7, J10

**Voice Control Units (VCUs)**

- PN: 1142642  2U STT Voice Control Unit (with microphone)
- PN: 1142643  1U STT Voice Control Unit (with microphone)
- PN: 1142644  2U STT Voice Control Unit (with headset)
- PN: 1142645  1U STT Voice Control Unit (with headset)

**Other Accessories**

- PN: 1117574  STT Fan Tray (includes power cable)
- PN: 1099419  STT Fan Tray Filter
- PN: 1118069  Falcon III Keypad Display Unit (KDU) for controlling the STT UHF/VHF Channels
- PN: 1044621  GPS with Network Time Server that provides 1 PPS signal suitable for use as ETR to STT Terminals. GPS Antenna and 100 ft cable included.

**Transport Cases**

- PN: 1202383  STT
- PN: 1204022  STT with Fan Tray Assembly
POWER, COOLING, CONTROL, AND ACCESSORIES FOR MIDS JTRS

ORDERING INFORMATION

**MIDS JTRS Cables**
- PN: 1052414        RPS-MT W105 B power
- PN: 1052382        IRPS-MT W112 C power
- PN: 1052380        MIDS JTRS W104 Fill Cable
- PN: 1048766        MIDS JTRS W103 Host Cable with 1553 and Ethernet for Platform A, RT Address 1
- PN: 1126528        JTRS HMI Bus, J16 Cable
- PN: 1126394        MIDS JTRS Pass Through Cable

**MIDS JTRS can be used with the following items**
- PN: 1027226       MIDS-LVT(1) Cooling Tray Unit (115 VAC 60 Hz)
- PN: 1027984       MIDS-LVT(1) Cooling Tray Unit (230 VAC 50 Hz-Euro)

The cooling tray is sufficient for core (single channel) MIDS JTRS applications, which includes Link 16, Voice, CMN, and TACAN. For multi-channel applications (Channels 2, 3, and 4), please contact ViaSat.

**MIDS JTRS Racks**
- PN: 1136426 MIDS-LVT(1) Mobile Rack with Voice Control Unit and Mic
- PN: 1136427 MIDS-LVT(1) Mobile Rack with Voice Control Unit and Headset
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.

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.

RF NETWORKS

**SPECIFICATIONS**

| Rackmountable Model | Dimensions | 9 x 3.5 x 8 in. |
| Rackmountable Model | Weight (Approximate) | 5.5 lb |
| Portable Model | Dimensions | 7 x 2 x 7 in. |
| Portable Model | Weight (Approximate) | 3.5 lb |

**ORDERING INFORMATION**

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

RF ANTENNA CABLES

**ORDERING INFORMATION**

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

SPECIFICATIONS

Portable Antenna
- Dimensions: 11 x 1.3 in.
- Weight: 2 lb

Portable Antenna (Tripod-Mounted)
- Dimensions: 24 x 8 in. (in bag)
- Weight: 5 lb

HIGHLIGHTS

Portable Antenna
- L-band: 960 to 1215 MHz
- 200 W
- +2dBi nom
- Type N Female RF Connector

Portable Antenna (Tripod-Mounted)
- L-band: 960 to 1200 MHz
- 250 W at 50,000 ft
- Lightweight metal tripod

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

Dimensions: 40 x 3 in.; 1029 x 76.2 mm
Weight: 3.75 lb

HIGHLIGHTS
- L-band: 960 to 1215 MHz
- Gain: 7 dBi
- Operating Temperature: -40˚ to +50˚ C

ORDERING INFORMATION

PN: 1044620       L-band Ground Antenna
Link 16 Environment Gateway Simulator (LEGS) is an essential MIDS 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.

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, such as the GoBook 3.

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 ENVIRONMENT GATEWAY SIMULATOR (LEGS)**

- Terminal initialization control
- Terminal status monitoring
- Detailed recording
- MIDS re-programmer
- Scenario generation
- Situation awareness
- Gateway to up to 8 client applications
- Multi-terminal control

**SUPPORTED TERMINAL TYPES**

- MIDS LVT(1) Platform A, B, D, I, and Support Port
- MIDS LVT(2) X.25, Platform J, JREAP-C, and Support Port
- MIDS on Ship (MOS) Platform M and Support Port
- MIDS LVT(3) FDL and Support Port
- Class 2 Navy Shipboard, Navy Airborne, Army 2M, and USAF F-15
- MIDS JTRS Support Port and Host Interfaces
- STT Platform J

**LEGS-LITE**

- A low-cost version of the LEGS software that does not include the scenario generation or situation display capabilities is available

**ORDERING INFORMATION**

- PN: VA-022801-9000  LEGS
- PN: VA-022801-9500  LEGS-LITE
- PN: VA-022801-9900  LEGS-MIDS JTRS

Licenses are available for installation on customer-furnished equipment

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

- 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
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 data from each terminal node, integrating this data and analyzing it to detect and identify anomalies.

**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 from 1 to greater than 5
- 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 expedient detection and correction of network problems

**ARMS IS BUILT WITH THREE FUNCTIONAL ARCHITECTURAL PIECES**

- Link 16 Interface Processes (LIPs)
- Centralized Analysis Process (CAP)
- ARMS User Interface (AUI)

**ORDERING INFORMATION**

PN: 1086429       ARMS
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.
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 STT terminals. We also offer training on our software products including LEGS, ARMS, and TOES. 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.

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<td>VSAT 101</td>
<td>MIDS Familiarization (Short Course)</td>
<td>1-day training course on MIDS-LVT</td>
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<td>LEGS Familiarization (Short Course)</td>
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<td>MIDS Specifications and Documentation (Short Course)</td>
<td>1-day training course on MIDS ICDs and SSS</td>
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<td>VSAT 106</td>
<td>Link 16 Flight-line Tool (LiFT)</td>
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<td>VSAT 106A</td>
<td>LiFT Training</td>
<td>2-day training course on ViaSat’s LiFT</td>
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<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>
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<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>
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<tr>
<td>VSAT 204</td>
<td>MIDS/LEGs: Operations and Maintenance for the Field Service Engineer (Available to U.S. Citizens)</td>
<td>7-day training course focusing on the field level maintenance of the MIDS-LVT to include SRU removal</td>
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<td>VSAT 205</td>
<td>MIDS JTRS: Operations and Maintenance (Available to MIDS-JTRS Users)</td>
<td>5-day training course focusing on MIDS JTRS operations and maintenance</td>
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<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>
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<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>
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<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>
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<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>
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<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>
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1STT = Small Tactical Terminal
2TOES = Terminal Operational Environment Simulator

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