

# 2.4 METER FLYAWAY VSAT MOBILE TERMINAL ENGAGE™ CLASS

## Engage Class Advanced 2.4 meter Flyaway VSAT Mobile Terminal

X, Ku, or Ka-Band terminal

Two modems built in, for two separate independent links

Second Generation GaN SSPB

XTAR Certified

### Overview

2.4m Flyaway SATCOM Terminal Solution includes the most advanced technology available today.

The Engage Class Advanced 2.4 meter Flyaway VSAT Terminal is based on a high efficiency, ruggedized tri-band ready 2.4 Meter Flyaway Antenna, which can cover X-Band, Ku-Band, or Ka-Band, by replacing the feed only. The antenna is optionally fully motorized with an integrated satellite finding controller.

#### The RF section includes the award winning Second Generation GaN based technology SSPA/SSPBs.

X-Band from 20W to 100 W

Ku-Band from 16W to 125W

Ka-Band from 10W to 40W

#### The entire terminal is fully compliant with:

MIL-STD-188-164a

MIL-STD-810F

NATO STANAG 4484



### Features

- ▶ Flexible and Mobile Solution
- ▶ Fully integrated system for easy deployment and use
- ▶ Quick two-persons installation
- ▶ Two SLM 5650A Comtech satellite modems for two independent links
- ▶ Multi Band Frequency X, Ku or Ka-Band operation
- ▶ Compact ruggedized packaging, IP65 compliant
- ▶ World leading Second Generation GaN based Solid State Power Amplifier
- ▶ Excellent Reliability
- ▶ Minimal Maintenance

### Optional

- ▶ High Performance Motorization Package
- ▶ Integrated Control System for 1 Button Auto Acquire
- ▶ Routers and Management PoE Switch
- ▶ Location finding tool set (Compass, GPS, Clinometer)
- ▶ Hand held spectrum analyzer
- ▶ UPS with Battery set and NMS Ethernet Card
- ▶ Power generator with Automatic Transfer Switch
- ▶ IP Phone
- ▶ Ruggedized laptop

# Product Features & Specifications

## Technical Specifications

Specifications		Coding options		
<b>Operating Frequency Range</b>	52 to 88 MHz, 104 to 176 MHz, 950 to 2000 MHz in 100 Hz steps	Uncoded	Standard	1/1
<b>Modulation Types</b>	BPSK, QPSK, OQPSK, 8PSK, 8-QAM, 16-QAM	Viterbi	Standard	K=7,1/2, 3/4, and 7/8 rates
<b>Spreading Factors</b>	Integer factors 2-128, plus 256 and 512; BPSK	Viterbi & Reed-Solomon	Standard	Closed network, per IESS-308 and IESS-309
<b>Digital Data Rate</b>	EIA-530: 64 kbps to 20 Mbps, 1 bps steps EIA-613: 64 kbps to 51.84 Mbps, 1 bps steps Gigabit Ethernet: 8 kbps to 155.52 Mbps	Trellis	Standard	Per IESS-310
<b>Symbol Rate</b>	32 kspss to 64 Mspss	Trellis and Reed-Solomon	Standard	Per IESS-310
<b>External Reference Input</b>	TNC connector, 1, 5, or 10 MHz, selectable	Triple Viterbi	Optional	1/2 and 3/4 Legacy SDM-9000 compatibility
<b>INT REF Stability</b>	1 x 10 <sup>-7</sup>	Sequential	Optional	1/2, 3/4, and 7/8 rates
<b>Scrambling</b>	V.35, OM-73 and synchronous	Turbo Product Code (TPC)	Optional	5/16, 21/44, 3/4, and 7/8 TPC per IESS-315
<b>IDR/IBS Framing Compatibility</b>	Support for IDR and IBS framing. Allows basic IDR/IBS open network compatible operation	Low Density Parity Check (LDPC)	Optional	1/2, 2/3, 3/4, and 7/8 HP, LL, and ULL modes
<b>Built-in Test (BIT)</b>	Fault and status reporting, BER performance monitoring, IF loopback, programmable test modes, built in Fireberd emulation	<b>Available options</b>		
<b>Summary Faults</b>	Reported via front panel LEDs, 15-pin D sub, FORM C relay contacts for TX, RX, common equipment faults, and TX and RX alarms	<b>How Enabled</b>	<b>Option</b>	
<b>Unit Management</b>	EIA-485, EIA-232, 10/100Base-T Ethernet with HTTP, Telnet and SNMP	FAST	Data rates to 5, 10, 20, 52 or 155 Mbps	
<b>Modulation</b>		FAST	8PSK/8-QAM and 16-QAM	
<b>Output Power</b>	+10 to -40 dBm, adjustable in 0.1 dB steps	FAST	TPC to 5, 10, 20, 52 or 155 Mbps	
<b>Output Return Loss</b>	14 dB (70/140 MHz) 9 dB (L-Band)	FAST/Hardware	TPC and LDPC to 5, 10, 20, 52 Mbps	
<b>Output Impedance</b>	50 Ω	FAST	Vipersat Management System	
<b>Spurious</b>	From Carrier + symbol rate to 500 MHz -51 dBc	FAST	Diff-Serv QoS	
<b>Harmonics</b>	From carrier (CW) to 4000 MHz -60 dBc	FAST	Secure Network Management (SSL/SSH/SNMPv3)	
<b>TX Clock Source</b>	INT, TX terrestrial, and data source sync, RX satellite	FAST	ASYNC RS-485/232 overhead channel /AUPC	
<b>Output Connectors</b>	TNC for 52 to 88 MHz, 104 to 176 MHz Type "N" for 950 to 2000 MHz	FAST	Sequential FEC	
<b>Demodulation</b>		FAST	DoubleTalk Carrier-in-Carrier	
<b>Input Carrier Power</b>	70/140MHz bands: +10 to -55dBm L-Band: +10 to -55 dBm carrier (SR > 3.2 Mspss) +10 to [-55 - 10log10(3.2/SR)], (SR ≤ 3.2 Mspss)	FAST	Asymmetric TX/RX data rate levels	
<b>Maximum Composite Power</b>	+20 dBm or +40 dBc	FAST	Bridged point- to-multipoint	
<b>Input Impedance</b>	50 Ω	FAST	SDM-9000 compatibility ( including Triple Viterbi)	
<b>Input Connectors</b>	TNC for 52 to 88 MHz, 104 to 176 MHz Type "N" for 950 to 2000 MHz	FAST	Spread Spectrum	
<b>Carrier Acquisition Range</b>	± 30 kHz, selectable	Hardware	G.703 data interface	
<b>Input Return Loss</b>	14 dB (70/140 MHz) 9 dB (L-Band)	Hardware	LVDS data interface	
<b>Buffer Clock</b>	INT, TX terrestrial, RX satellite	Hardware	TRANSEC module	
<b>Doppler Buffer</b>	32 to 16,777,216 bits, selectable	Hardware	Gigabit Ethernet Network Processor	
		Hardware	Extended Operational Temperature	
		Hardware	24 VDC power supply	
		<b>Environmental And Physical</b>		
		<b>Prime Power</b>	90 to 264 VAC, 47 to 63 Hz 130 W (max), 90 W typical 24 VDC optional	
		<b>Mounting</b>	1RU	
		<b>Dimensions (height x width x depth)</b>	1.71" x 19" x 19" (4.3 x 48 x 48 cm)	
		<b>Weight</b>	≤ 12 lbs (5.5 kg)	
		<b>Temperature, Operating Extended Temp Option:</b>	0 to 50°C (32 to 122°F) -32° to 50°C (-25 to 122°F)	
		<b>Temperature, Storage (Non-operational)</b>	-40 to +70°C (-40 to 158°F)	
		<b>Humidity</b>	0 to 95%, non-condensing	

RF Performance			
	20W to 100W X-Band	16W to 125 Ku Band	10W to 40W Ka Band
	TX	TX	TX
<b>Frequency (GHz)</b>	7.900 – 8.400	13.75-14.5	30.0 – 31.0
<b>EIRP</b>	55 dBW to 62 dBW	60 dBW to 69 dBW	64dBW to 70 dBW