

RESILIENT WAVEFORM MODEM FAMILY OF SOLUTIONS—A3M

High Performance, Flexible, Reliable and Ready

The Resilient Waveform Modem Family of Solutions—A3M (Air Force—Army Anti-Jam Modem) is the latest technology and innovation platform from L3Harris. The A3M solution enhances the warfighter's ability to communicate critical data by maintaining assured and secure satellite communications in highly congested and contested environments that include the presence of adversarial jamming.

PRODUCT DESCRIPTION

In collaboration with US Space Force Space Systems Command (SSC), L3Harris has designed, developed, fabricated, integrated, and certified Block 1 A3M's 1U form factor modem for use in the Air Force Ground Multiband Terminal (GMT), the Army Satellite Transportable Terminal (STT), and other tactical terminals. The jam-resistant modem enables SSC's Protected Tactical Waveform (PTW) technology, which provides anti-jam military satellite communication capability to warfighters initially over the Wideband Global SATCOM (WGS) constellation, with high throughput, wideband communication for tactical SATCOM operations. The A3M platform was also designed for compatibility with future commercial and government SATCOM systems.

These L3Harris modems are optimized for high-rate production and are designed to become an integral part of the service's growing Protected Anti-Jam Tactical Service (PATS) enterprise. Several airborne and ground-based platforms and thousands of terminals across the Department of Defense have been identified as transition candidates to the PTW-enabled terminals.



Providing PTW Technology for Resilient Global Communication

KEY FEATURES

- > Provides secure anti-jam satellite communications
- > Optimized design for high-production manufacturing rates
- > CHVP Certified End Cryptographic Unit (ECU)¹
- > WGS Certification¹
- > FIPS 140-2 for cryptographic processing outside of ECU
- > Provides an intuitive Web GUI for configuration updates
- > Terminal agnostic
 - Verified compatibility with Air Force GMT and Army STT terminals
 - Compatible with a wide variety of terminals
- > Compliant to maximum throughput of PTW specification
- > National Stock Number (NSN): 5895-01-715-9988
- > A3M installation, operation, support and maintenance manual
- > Software Defined Radio (SDR) capable of supporting other waveforms

1. Certification pending

SPECIFICATIONS

COMPLIANCE

- > Terminal modem compliant with Protected Anti-Jam Tactical SATCOM Enterprise specifications
- > Supports burst modes, modulations, and coding schemes per PTW ICD
- > Meets WGS MF-TDMA specification¹

EXTERNAL INTERFACES

- > 1 management port, 10/100/1000 BASE-T compliant with web browser user interface
- > 3 user data ports, 10/100/1000 BASE-T compliant
 - Antenna control via 1 customer port (future software upgrade)
- > RS-232 GPS messages (GPS receiver not included)
 - Time and position from a M-Code/DAGR GPS receiver
 - Time and position from a IS-GPS-153D compliant GPS receiver
- > 5 MHz or 10 MHz reference input
- > 10 MHz reference output
- > Transmit and receive L-band interfaces compliant with PTW ICD
 - Software control of sourcing 10 MHz reference onto transmit and receive interfaces (-4 to +9 dBm)
 - Software control of sourcing +18 VDC (450mA max) onto receive interface (external LNB power)
- > Key fill, data key SlimLine token, 10-button PIN entry

SERVICES

- > A3M operator training course

1. Certification pending

RF PERFORMANCE

Frequency Range	950 MHz to 2050 MHz, 1KHz step size
Output Power Range	-40 dBm to +0.0 dBm
Output Power Step Size	0.25 dB
Output Power Absolute Accuracy	± 0.50 dB
IF Input Power (signal of interest, bandwidth dependent)	-77 dBm to +10 dBm
IF Input Power (sum all carriers)	+20 dBm
IF Minimum Input Noise Level	-130 dBm/Hz
IF Input without damage	+25 dBm

BURST MODE

MODULATION

CODING

5+9	QPSK	1/12, 1/6, 1/3, 1/2, 2/3, Uncoded
3+54	QPSK	1/4, 1/3, 1/2, 2/3, Uncoded
	8PSK	3/5, 3/4, 8/9, Uncoded
15+216	QPSK	1/4, 1/3, 1/2, 2/3, Uncoded
	8PSK	3/5, 3/4, 8/9, Uncoded
60+864	QPSK	1/4, 1/3, 1/2, 2/3, Uncoded
	8PSK	3/5, 3/4, 8/9, Uncoded
240+3456	QPSK	1/4, 1/3, 1/2, 2/3, Uncoded
	8PSK	3/5, 3/4, 8/9, Uncoded

PHYSICAL CHARACTERISTICS

SWAP

Size	1 RU Form Factor, 19" (w) x 1.75" (h) x 18.5" (d)
Weight	< 20 lbs
Power	Input voltage of 110 VAC and 220 VAC, 47-63 Hz, 170 Watts max

ENVIRONMENTAL DESIGN ELEMENTS

Compliance	MIL-STD-810G, MIL-STD-461G, FCC Part 15
Shock	40g, 11 msec (operating)
Vibration	Ground mobile (operating), tracked vehicles (operating), mission/field transportation (non-operating)
Temperature	-37 °C to +60 °C (operating, ambient), -37 °C to +71 °C (non-operating)
Altitude	15,000 feet (operating), 40,000 feet (non-operating)
Other	Humidity, sand/dust, salt fog, fungus



Front Panel

