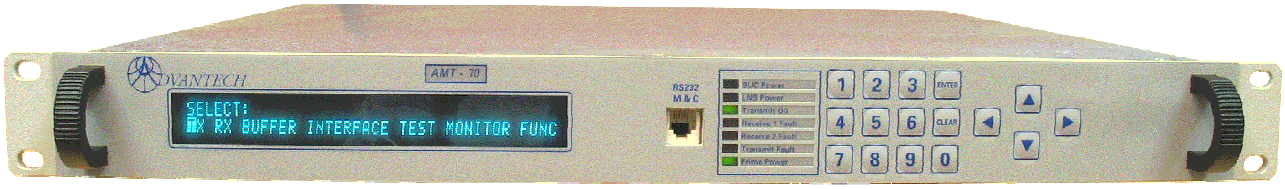
AMT 73L Modem

MIL-STD-188-165A Compliant

AMT 73L Military Modem



Highlights

- **MIL-STD-188-165A Compliant**
- **Available today**
- Data Rates 64kbps – 52Mbps in 1bps steps
- Optional eTPC Rates from 0.5 to 0.92
- **eTPC** Extends data rate to 110Mbps
- BPSK, QPSK, OQPSK, 8PSK & 16QAM
- Modem types A, B, D, E & F
- Intelsat and OM-73 (V)/G scrambling
- Optional DVB-S and DVB-SNG
- Physical Engineering Service Channel
- Software Up-gradable
- Built in BERT
- Clock recovery from input data
- **Software Defined Radio**
- Excellent spurious performance
- Meets **40dBc ACI** requirement
- L Band 950 to 2000MHz
- 70/140MHz IF options
- Compliant with IESS 308/309/310
- EIA530/449, HSSI interfaces standard
- G703, 10/100BaseT, DS-3, STS-1 (SONET), LVDS and ASI interfaces optional.

Future option:

DVB-S2, LDPC
Adaptive coding modulation
16APSK, 32APSK with adaptive equaliser
Pilot assisted demodulation for enhanced carrier recovery

Applications

The first modem to be compliant with **MIL-STD-188-165A.** The AMT 73L was designed to fulfil two way satellite communication requirements in Defence Satellite Communications Systems (DSCS).

Overview

Based on Advantech "Software Defined Radio" architecture, the design ensures unrivalled flexibility, and upgrade paths to meet the increasingly demanding requirements now and in the future.

Employing advanced FEC's, Viterbi, PTCM, Concatenated Reed Solomon & Turbo. **eTPC** offers gains up to 3.0 dB Eb/No @10^{-7} BER over previous generation of concatenated Viterbi and Reed-Solomon FEC.

This performance gain can be translated directly into higher data throughput, reduced antenna size or reduced satellite bandwidth, which significantly reduces transponder costs; provides more link margin or decrease antenna cost

Overview (cont)

The standard data interfaces are EIA530/499 and HSSI, optional are the **IP Gateway** 10/100BaseT, G703, DS-3, STS-1 (SONET), LVDS and ASI.

The **IP Gateway** option is a miniaturised fully fledged IP router designed to give ease of use, support for a wide range of protocols, security and QoS. (See datasheet for full information)

1:1 Redundancy switching is built into the unit as an optional feature. With the addition of an interconnecting control cable between the modems and the switch unit for IF and data interfaces complete redundancy is achieved.

Monitoring and Control via Ethernet using HTTP, Telnet or SNMP V1, and serial interface using packet mode RS485 or terminal mode RS232.

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AMT ADVANTECH™

DESCRIPTION	SPECIFICATION			
PERFORMANCE SPECIFICATIONS				
Data Rate	64kbps to 52Mbps (110Mbps with turbo option)			
Symbol Rate	32ksps to 30Msps			
Data Interfaces	EIA/TIA530/422 or EIA/TIA449, HSSI	Optional G703 Interface Optional 10/100BaseT Ethernet Optional DS-3, STS-1 or LVDS		
Scrambling, Descrambling	IDR/IBS (IESS-308; IESS-309; IESS-310), OM-73 (V)/G (and no scrambling for BPSK, QPSK and OQPSK)			
Data Connector EIA/TIA530 EIA/TIA449 HSSI	Standard 25-pin Sub-D (f) Standard 37-pin Sub-D (f) Standard 50 pin SCSI-2 connector			
MODULATOR SPECIFICATIONS				
Data Rates 165A Compliant (Max Rate for Modulation)	***Viterbi with Reed Solomon***			
	BPSK: 64kbps to 8.472Mbps (26Mbps)	QPSK: 64kbps to 20Mbps (52Mbps)		
	8PSK: 256kbps to 52Mbps (60Mbps)			
Modulator Roll-Off Factor	Approx 23% as defined by MIL-STD-188-165A			
Forward Error Correction (FEC) Code Rates	QPSK with Rate ½, ¾ and $^{7}/_{8}$ Viterbi encoding with K=7 8PSK with Rate $^{2}/_{3}$ PTCM Selectable Reed-Solomon outer codec based on IESS 308/309/310 standards			
IF Output Connector ***Return Loss:***	Type TNC (f) 50 Ohms for L-band, optional BNC (f) 50 Ohms for 70/140MHz ≥10 dB			
RF Output Frequency	L Band: 950-2000MHz; optional 70 +/-18MHz or 140 +/-36MHz, variable in 1kHz steps			
RF Output Power	***Range:*** 0 to -25dBm, adjustable in 0.25dB continuous increments ***Accuracy:*** ±0.5dB; ***Temp Stability:*** ±0.2dB			
Eb/No Performance	***Viterbi ½ Rate***	***Viterbi ¾ Rate***	***Viterbi ⅞ Rate***	***8PSK PTCM***
1×10^{-4}	4.0dB	5.2dB	6.4dB	6.6dB
1×10^{-7}	6.0dB	7.4dB	8.6dB	8.5dB
DEMODULATOR SPECIFICATIONS				
IF Input Frequency	L band 950-2000MHz, variable in 100Hz steps			
Nominal Input Level	-20dBm			
AGC Range	±40dB			
Maximum Input Signal Level	+20dBm			
IF Input Impedance and Return Loss	***Impedance:*** 50 Ohms; ***Return Loss:*** ≥ 10dB; ***Connector***: TNC (f)			
Noise Figure	9dB typical, 12dB at maximum AGC gain			
Symbol Rate Acquisition Range	±100ppm			
Synchronization and Acquisition Time	Depends on data rate, frequency uncertainty, and operating Eb/No. Following is a sample: ***Average Acquisition Time:*** <25.0 sec, 64kbps @ +/-30kHz sweep range			
INTERFACE SPECIFICATIONS				
Monitoring and Control (M&C) Interface	***External M&C Interface:*** EIA/TIA485 Packet mode or EIA/TIA232 10/100BaseT for SNMP, Web Server, Telnet or HTTP ***Configuration Parameter Storage:*** NVRAM			
Optional IP Gateway	***RJ45 Traffic Interface*** **Full 10/100BaseT interface with Router/Bridge capability for full information see the IP Gateway datasheet**			
Optional G703	***Encoded Line Rate:*** n x 2048kbps (with Fractional E1) +102.4bits/s (±50ppm) ***Line Coding:*** HDB3 ***Digital Interface:*** Balanced or Unbalanced			
PHYSICAL AND POWER SPECIFICATIONS				
Dimensions	Standalone or rack-mountable 1U Rack or 1U EIA chassis ***Height:*** 4.4 cm (1.75") ***Width:*** 48.26 with mounting ears or 43.2 cm without (19" or 17") ***Depth:*** 50.8 cm (20") ***Weight:*** 13.5 lb (6.2 kg) maximum			
Power, AC	90 – 264 VAC, 50/60Hz ***Power Consumption:*** 65 Watts typical			
Power, DC (Option)	***DC Power:*** -48 VDC (32 to 72 VDC) ***Power Consumption:*** 62 Watts typical			
ENVIRONMENTAL SPECIFICATIONS				
Environnemental	***Operating Temperature:*** 0°C to 50°C (32°F to 122°F) ***Storage Temperature:*** -25°C to 85°C (-13°F to 185°F) ***Relative Humidity:*** Operating: Up to 90% non-condensing Non-Operating: Up to 95% non-condensing ***Altitude:*** Operating: Up to 10,000' (3,045 M) During Transit: Up to 40,000' (12,180 M)			