



Highlights

- **First DVB-S2 Modem implementing both NORMAL and SHORT FEC Block**
- DVB-S and DVB-DSNG Compatible
- CCM as standard
- Optional VCM and ACM support
- Optional 16APSK for DVB-S2
- Modulator & Demodulator only options
- Demodulator Symbol Rates from 128ksps to 45Mps in DVB-S2 (32Ksps to 45Mps in DVB-S/DSNG)
- **Software Defined Radio**
- Software Up-gradable
- Adaptive Frequency Domain Equalizer
- Excellent spurious performance
- L Band & 70/140MHz IF capable
- Low Cost future proof design
- ASI Interfaces
- HSSI, Triple HSSI Interfaces and **Multiple G703**
- **IP Gateway** option providing:
 - QoS Level 3
 - Routing Static & Dynamic RIP V 1.2
 - DHCP Client.

Applications

Advantech's **AMT 75 S2** Series modem provides a solution in multiple applications; broadcast video, IP Backbone, serial data and voice from a single platform. Using the upgrade paths enables the AMT75 to develop along with the network demands, and reduce stock holding and capital replacement costs.

Overview

AMT-75Series modems are designed using "Software Defined Radio" techniques to ensure unrivalled flexibility, and upgrade paths, provided by modulator only and demodulator only versions, to meet the increasingly demanding requirements now and in the future. This is achieved by its ability to operate from 32ksps to 45Mps; implementation of powerful FEC's: - DVB-S, DVB-DSNG and DVB-S2; providing multiple traffic interfaces: - HSSI, Triple HSSI, ASI, Octal G703 and 10/100BaseT Ethernet.

The DVB-S2 implementation includes 16APSK and both 16k (SHORT) and 64k (NORMAL) FEC Block sizes in CCM format. The modem is upgradeable to provide simple VCM and ACM solutions.

Overview (cont)

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 decreases antenna cost.

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. This flexibility ensures it will offer the performance needed in Internet café to IP backbone applications. (For more information see datasheet). The Universal Gateway can be fitted to provide multiple G703 and IP interface connectivity.

1:1 Transmit 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 a Web Server, HTTP, Telnet or SNMP V1, and serial interface using packet mode RS485 or terminal mode RS232.

DESCRIPTION	SPECIFICATION		
PERFORMANCE SPECIFICATIONS			
Data Rate	64 kbps to 140 Mbps	Rates Options	16kbps to 10Mbps 16kbps to 20Mbps 16kbps to 52Mbps 16kbps to 140Mbps
Symbol Rate	16 ksps to 40 Msps Modulator`		32ksps to 45Msps DVB-S (128ksps to 45Msps DVB-S2)
Data Interfaces	RS-530/422		Optional 10/100BaseT IP Gateway Optional Octal G.703 Optional single or multiple ASI Interfaces Optional HSSI or Triple HSSI
Scrambling, Descrambling	DVB (and no scrambling for BPSK, QPSK and OQPSK)		
Data Connectors	25-pin D connector for RS-530/422 Interface; 15-pin D (f) connector, 120 Ohm balanced for G.703 Interface RJ45 balanced for bi-directional G.703 BNC female for ASI 50-pin SCSI-2 type connector for HSSI and RJ-45 for Ethernet option		
Monitoring and Control (M&C) Interface	External M&C Interface:	RS-232 Terminal mode, RS-485 Packet mode, 10/100BaseT for Web Server, SNMP, Telnet or HTTP	
	Configuration Parameter Storage:	NVRAM	
MODULATOR SPECIFICATIONS			
Data Rates	DVB-S and Intelsat 308/309		
	BPSK: 16 kbps to 36 Mbps	QPSK:	16 kbps to 70 Mbps
	DVB-DSNG		
	QPSK: 64 kbps to 70 Mbps OQPSK: 64 kbps to 72 Mbps	8PSK:	128 kbps to 110 Mbps
		16QAM:	128 kbps to 140 Mbps
	DVB-S2		
	QPSK: 64 kbps to 70 Mbps	8PSK:	256 kbps to 110 Mbps
		16APSK:	340 kbps to 140 Mbps
Modulator Roll-Off Factor	15% to 35% in 1% steps		
Forward Error Correction (FEC) Code Rates	Intelsat 308/309 DVB-S/DVB-DSNG Coding DVB-S2 SHORT and NORMAL FEC Block SHORT Block 16kbit $\frac{1}{4}, \frac{1}{3}, \frac{2}{5}, \frac{1}{2}, \frac{3}{5}, \frac{2}{3}, \frac{4}{5}, \frac{5}{6}, \frac{7}{8}, \frac{8}{9}$ NORMAL Block 64kbit $\frac{1}{4}, \frac{1}{3}, \frac{2}{5}, \frac{1}{2}, \frac{3}{5}, \frac{2}{3}, \frac{4}{5}, \frac{5}{6}, \frac{7}{8}, \frac{8}{9}, \frac{9}{10}$		
	* Only available in QPSK according to DVB-S2 Specification		
IF Output Connector	Type N (f) 50 Ohms for L band, BNC (f) for 70/140 MHz Impedance: 50 Ohms; Return Loss: ≥ 12 dB		
RF Output Frequency	L Band: 950-1750 MHz variable in 1Hz steps Optional: 950-2000 MHz variable in 1Hz steps IF Band 70 +/-18 MHz or 950-2000MHz 140 +/-36 MHz or 950-2000MHz		
RF Output Power	Range: +0 to -25 dBm, adjustable in 0.10 dB increments Accuracy: ± 0.5 dB; Temp Stability: ± 0.25 dB		
BUC Reference Frequency and Stability	Frequency: 10 MHz, 0 dBm, +2 dB Stability: 1×10^{-9} /per day; $\pm 150 \times 10^{-9}$ long term, no frequency/phase hits for external ref.		
BUC 10 MHz Reference Frequency Phase Noise	Phase Noise (1 Hz bandwidth) -115 dBc/Hz maximum @ 10 Hz -135 dBc/Hz maximum @ 100 Hz; -148 dBc/Hz maximum @ 1 kHz		-150 dBc/Hz maximum @ 10 kHz -160 dBc/Hz maximum @ 100 kHz
Typical Eb/No Performance, DVB-S DVB-DSNG DVB-S2	QPSK < 0.5dB margin < 0.5dB margin < 0.5dB Margin	8PSK N/A < 0.7dB margin < 0.7 dB margin	16QAM/16APSK N/A < 1dB margin < 1 dB margin

DEMODULATOR SPECIFICATIONS

IF Input Frequency	L band 950-2150 MHz, variable in 100 Hz steps	
Demodulator Roll-Off Factor	25% or 35%	
Front-End BPF	Tuneable Filter:	950 MHz ≤ f ₀ ≤ 2150 MHz;
	Flatness:	≤ 0.8 dB in any 54 MHz bandwidth;
Nominal Input Level	-45 dBm - 10log(400/R) dBm, where R = Symbol Rate in kSymbols	
AGC Range	±20 dB	
Maximum Input Signal Level	-10 dBm	
IF Input Connector	Type F (f) for L Band	
	Impedance:	75 Ohms;
	Option: Type BNC (f) for 70/140MHz	50 Ohms
	Return Loss:	≥ 10 dB;
	LNB Alarm for Short Circuit	
Noise Figure	9 dB typical, 12 dB at maximum AGC gain	
LNB Power Supply Output and Control	Selectable LNB Supply Voltage:	ON/OFF, 18 VDC (Horizontal Pol.) or 13 VDC (Vertical Pol.)
	LNB Control:	22 ±4 kHz single tone burst, amplitude = 0.6 ±0.2 V p-p
Symbol Rate Acquisition Range	±200 ppm	
Synchronization and Acquisition Time	Depends on data rate, frequency uncertainty, and operating Eb/No. Following is a sample: Average Acquisition Time: <5 sec, 256 kbps @ +/-30 kHz sweep range <0.5sec, >2Msymbols/S inside +/- 2% of Symbol rate with DVB-S2	

INTERFACE SPECIFICATIONS

Data Interface

	25-pin D connector for RS-530/422 Interface; RJ-45 connector, 120 Ohm balanced for G.703 Interface BNC (f), 75 Ohms for ASI 50-pin SCSI-2 type connector for HSSI and RJ-45 for Ethernet option	
Receiver/Transmitter ASI Interface	Encoded Line Rate:	270 Mbps ±100 ppm
	Min. Sensitivity (D21.5 idle pattern):	200 mV
	Max. Input Voltage:	880 mV p-p
	Min. Discrete Connector Return Loss:	15 dB
	Max. Distance:	150 Meters
Multiple G.703	Encoded Line Rate:	n x 2048 kbps (with Fractional E1) +102.4 bits/s (±50 ppm)
	Line Coding:	HDB3
	Digital Interface:	Balanced

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:	40.0 cm (15.75")
	Weight:	8 lb (3.7 kg) maximum
Power, AC	Power Supply Voltage	90 – 264 VAC, 50/60 H
Power, DC (Option)	DC Power:	-48 VDC (32 to 72 VDC)
	Power Consumption:	50 Watts not including BUC power supply
	BUC Power Supply:	24 VDC @ 4.0 A, 48 VDC @ 2.3 or 4.0 A

ENVIRONMENTAL SPECIFICATIONS

Environmental	Operating Temperature:	0°C to 45°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)

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