



**ASM 988A Advanced Satellite Modulator**

## ASM 988A Advanced Satellite Modulator

With the ongoing need to increase bitrate efficiency, operators are looking for better modulators that will provide more bits per Hz. The ASM 988A provides higher bitrate by offering efficient 8PSK modulation as well as 16-QAM and QPSK. The ASM 988A is perfect for the DBS environment, contribution, or SNG.

### Key Features

- Provides 8PSK modulation in the same SNR environment as QPSK
- Supports legacy QPSK mode
- Supports 16-QAM, Advanced QPSK
- Inputs include DVB-ASI, M2P and DVB-SPI with TS input at 1 to 85 Mbps
- Supports DSS QPSK
- Optional L-Band Output
- Monitored parameters for error reporting and detection
- 10 Mhz reference clock input
- -20 dB front panel test output
- Alarm generation with relay output for redundancy switching
- Remote control through Ethernet supports SNMP protocol
- 70 MHz IF output
- Packet stuffing and PCR recalculation for input data rate adjustment on ASI input

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## 8PSK Modulation Parameters

FEC Rate	FEC 2/3	FEC3/4-I	FEC 3/4-II	FEC 5/6	FEC 8/9
Bit Rate in Mbits/s	0.52 to 57.1	0.55 to 62.8	0.5 to 61.2	0.59 to 68.5	0.61 to 71.4
Baud Rate in Mbauds	0.256 to 30	0.256 to 30	0.256 to 30	0.256 to 30	0.256 to 30

Note: FEC 3/4-I represents 2.1/symbols and FEC 3/4-II represents 2.05 bits/symbols

- Excess Bandwidth (alpha): 0.1 to 0.5 with 0.01 Resolution
- Symbol Rate Step 1bps
- Spectral Inversion: on / off

## QPSK Modulation Parameters

FEC Code Rates: 1/2, 2/3, 3/4, 5/6, 7/8  
FEC Modes: As per ETSI EN 300 421 V1.1.2 DVB  
Symbol Rate: 256 KSps to 30 MSps  
Excess Bandwidth (alpha): 0.1 to 0.5 with 0.01 Resolution  
Spectral Inversion: on / off

## Advanced QPSK Modulation Parameters

FEC Code Rates: 1/4, 1/2, 3/4  
FEC Modes: Turbo Code  
Symbol Rate: 256 KSps to 30 MSps  
Excess Bandwidth (alpha): 0.1 to 0.5 with 0.01 Resolution

Note: FEC 3/4-I represents 2.1 bits/symbols and FEC 3/4-II represents 2.05 bits/symbols

## 16-QAM Modulation Parameters

FEC Rate: 3/4  
FEC Mode: Turbo Code  
Symbol Rate: 256KSps to 30 MSps  
Excess Bandwidth (alpha): 0.1 to 0.5 with 0.01 Resolution

## DSS QPSK Modulation Parameters

FEC Rate: 1/2, 2/3, 6/7 FEC Mode  
Symbol Rate: 256 KSps to 30 MSps  
Excess Bandwidth (alpha): 0.1 to 0.5 with 0.01 Resolution

## 70Mhz I.F. Output Specifications

Frequency: 70 MHz, Agile within +20 to -20 MHz, 1 Hz steps  
Power: 5 to -20 dBm, 0.5dB steps

Note: The Power output will be affected with temperature variations up to 2 dBm

Power Accuracy: 1dB (CW mode and spectral output mode)  
In Band Spurious: 50dBc  
Out of Band Spurious: 50dBc  
Phase Noise:  
@ 100Hz, -71 dBc  
@ 1 kHz, -81 dBc  
@ 10 kHz, -91 dBc  
@ 100 kHz, -101 dBc  
@ 1 MHz, -111 dBc  
Impedance: 75 ohms

## L-Band Output Specifications

Frequency: 950 to 1750 MHz in 1 MHz steps  
Spectrum: Normal or Inverted  
Gain: -20 to +20 dB in 0.5 dB steps  
Output Impedance: 50 ohms

## Monitored Parameters

- Fault History
- Input Sync Presence
- Output Signal Presence
- Faults: Temperature, supply voltages, and fans

## Transport Stream Inputs

- All TS inputs up to 85 Mbits/s
- M2P input, DB25
- DVB-SPI input, DB25 with loop through
- MPEG Bit/Byte clock output for modulator master mode operation
- Packet Stuffing and recalculation of PCR for input data rate adjustment >0% and < 40% of packets stuffing
- DVB-ASI sync mode for automatic data rate adjustment

## External Clock Input

- 10 MHz input TTL on BNC connector
- If external clock is present, unit automatically synchronizes to incoming 10 MHz
- If clock is absent, unit uses internal reference

## General Specifications

- Line Power: 100-240 Vac, 50-60 Hz
- 2 lines x 18 Characters Vacuum Fluorescent Display
- Dimensions: 19"W x 21" D x 1.75" H (1U rack mount chassis)
- Operating Temperature Specs: 0-50°C without L-Band 0-40°C with L-Band
- RS-232, and 10 BaseT Ethernet connections for configuration, monitoring, and control
- Relay contact outputs for fault monitoring and automated redundancy witch control
- SNMP protocol supported

Since 1951, Sencore has provided our customers with innovative operational, signal monitoring and analysis, and video/audio distribution equipment. Sencore continuously works in close collaboration with our customers to provide solutions for the communications delivery challenges of today and tomorrow. All Sencore products are backed by unsurpassed customer support and responsiveness