

ASM 5800 (70MHz / L-Band) Programmable SCPC/VSAT Modem



Agilis' latest ASM 5800 series satellite modem provides state of the art enhancements to the popular ASM4800 series of modems at the industry's lowest price. The ASM5800 series uses proprietary techniques of direct modulation and demodulation to completely eliminate transmit and receive IF sections and their associated filters. Sophisticated digital signal processing eliminates all on board physical adjustments and provides performance within 0.3 dB of theoretical. Direct Digital Synthesis (DDS) of the transmit, receive and data rate synthesizers allow settings to 1 Hz and 1 bps respectively. The ASM5800 (70 MHz) IF version is ideal for hub stations while the companion ASM5800 (L-Band) is optimized for low cost, high performance VSATs and small stations. The ASM5800 series adds 8PSK, 16QAM, Reed-Solomon and a built-in multiplexer to the ASM4800 series.

The ASM5800 series is unmatched by any other modem in its class for fast acquisition, BER performance and power/bandwidth optimization. It uses dedicated DSP for extremely fast acquisition over a programmable range.

The ASM5800 is available in 3 upgradable versions, offering the latest modulation, coding and FEC technology plus data rates to precisely meet your needs. The transmit and receive can independently use BPSK, QPSK, OQPSK, 8PSK and 16QAM modulation at any data rate or configuration settings. Reed- Solomon, IBS multiplexer, AUPC and remote modem control channels are built-in. Sophisticated TPC and other FEC options are available.

The full front panel provides a backlit LCD display, full keypad and LED indicators for monitor and control of all modem parameters.

Features

- BPSK, QPSK, OQPSK, 8PSK, 16QAM.
- Programmable receive acquisition/tracking range.
- Typical DSP acquisition time of 315 mseconds at 9.6 kbps QPSK, 71 mseconds at 64 kbps QPSK.
- Viterbi and Reed-Solomon FEC standard, TPC optional. BER vs. Eb/No performance within 0.3 dB of theoretical. 10⁻⁷ BER at 6.0 dB Eb/No (2.8 dB with TPC, 3.5 dB with Reed-Solomon codec).
- DDS transmit and receive frequency setting in 1 Hz increments.
- Programmable Interface type.
- Low power, light weight 1 U case.
- Built-in IBS Multiplexer with overhead channel, AUPC and Remote Modem Control.
- Built-in BER Test Set.
- DDS setting of transmit and receive data rates from 1.2 kbps to 20 Mbps in 1 bps increments.
- Viterbi FEC codec programmable to rate 1/2, 3/4, 5/6, 7/8 and disabled.
- 40 dB AGC range with +15 dBm composite input power.
- Fully programmable from either front panel or remote command without jumpers.
- Built-in 1:1 Redundancy.
- Designed to use internal or external G.703 and Ethernet interfaces.
- 140 MHz IF available on request.
- 8 User stored and recallable configurations. Automatic Recovery of stored configurations.

TECHNICAL SPECIFICATIONS

ASM 5800 (70MHz / L-Band) Programmable SCPC/VSAT Modem

PARAMETER	ASM5800 (70MHz)	ASM5800 (L-Band)
Operating Modes, all programmable:	Receive and Transmit Continuous (SCPC), Optional Tx Burst.	
Transmit IF Frequency Range:	50 to 90 (standard) in 1 Hz Steps.	950 to 1750 MHz in 1 Hz Steps.
Receive IF Frequency Range:	50 to 90 (standard) in 1 Hz Steps.	950 to 1900 MHz in 1 Hz Steps.
Transmit Output Power:	+5 to -35 dBm, programmable in 0.1 dB steps (max. +3 dBm @ 50)	
Transmit Output Interface	Programmable 75/50 ohm BNC Female	50 ohm Type N Female
Return Loss	20 dB minimum.	14 dB typical, 10 dB minimum.
Transmit Output Phase Noise:	Better than IESS-308/309 by 6 dB typical, 4 dB minimum.	
Transmit Output Level Stability/Accuracy:	±0.5 dB, 0 ~ 50°C, accurate ±0.5 dB, 50 ~ 90 MHz at 25°C	±0.5 dB, 0 ~ 50°C, accurate ±0.5 dB, 950 ~ 1750 MHz at 25°C
Transmit Output Spurious/Harmonics:	<-50 dBc / <-50 dBc up to -10 dBm, <-40 dBc @ +5 dBm out	
Receive Carrier Level In:	-20 to -60 dBm, scales to -84 at lower data rates. Formula is: minimum = 10log(symbol rate)-120 dBm	-20 to -70 dBm, scales to -101 at lower data rates. Formula is: minimum = 10log(symbol rate)-135 dBm
Receive Input Interface	Programmable 75/50 ohm BNC Female	50 ohm Type N Female
Return Loss	10 dB minimum.	
Maximum Composite Receive Input Power	+15 dBm or +40 dBc whichever is lower power	-5 dBm or +40 dBc whichever is lower power
Receive Demodulator Phase Noise:	Better than IESS-308/309 by 4 dB minimum., 6 dB typical.	
Receive Acquisition Range:	Programmable from 100 Hz to 1.25 MHz	
Transmit BUC Power: (via DIN plug on rear).	n.a.	Nominal 24VDC, 96 Watts (Or 12/36/48 VDC).
Voltage and Current monitor at Front Panel.	n.a.	Maximum 60 Vdc/6 A, up to 250 W. Max/Min V and
Transmit BUC Reference: (can be disabled).	n.a.	10 MHz at nominal +3 dBm from internal or external reference.
Receive LNB Power: (can be disabled).	n.a.	Selectable +13/+18 VDC at <500mA.
Current monitor at Front Panel.	n.a.	Max/Min current alarms limits settable.
Receive LNB Reference: (can be disabled).	n.a.	10 MHz at nominal -3 dBm internal or external reference.
Frequency Reference (Internal)	2 x 10 ⁻⁶ TCXO (Standard)	1 x 10 ⁻⁸ OCXO. 2 x 10 ⁻⁷ /year aging
Stability/Aging	n.a.	-110 dBc at 10 Hz -130 dBc at 100 Hz
External:	External reference input on rear panel for 1, 5, 9, or 10 MHz. Internal TCXO phase locks to external input.	-140 dBc at 1 kHz -150 dBc at 10 kHz -155 dBc at 100 kHz External reference input on rear panel for 1, 5, 9, or 10 MHz. Internal OCXO phase locks to external input.
Modulation and Demodulation - QPSK: 8PSK: 16QAM:	Programmable for BPSK, QPSK, OQPSK, independently Add 8PSK with Trellis Code Modulation Add 16QAM	
Forward Error Correction:	Viterbi standard. k=7, 4 or 16k block Turbo Product Codes optional.	
Standard Concatenated Reed-Solomon:	n=126, k=112, t=7 or n=219, k=201, t=9 or programmable, depth of 4 or 8	
FEC (Viterbi or TPC) Rates Selectable:	1/2, 3/4, 7/8 or disabled. Rate 5/6 in Viterbi only, Rate 2/3 in 8PSK mode.	
Data Rates Minimum, all modems at FEC rate: (without IBS mux or R-S option)	1.2 kbps rate 1/2 BPSK, 2.4 kbps, rate 1/2 or 7/8 BPSK 2.4 kbps rate 1/2, 4.8 kbps rate 3/4 or 7/8 QPSK or OQPSK 9.6 kbps all rates 8PSK, 19.2 kbps all rates 16QAM	
Data Rates Maximum - QPSK: 8PSK: 16QAM: (without IBS mux or R-S option) Note - Max rate may be limited by interface	5 Mbps, all modulation modes and FEC rates. 10 Mbps all modulation modes and FEC rates - see Note below 20 Mbps all modulation modes and FEC rates. - see Note below Note: Maximum rate limit of 7.38 Mbps, BPSK, rate 1/2; M520 Maximum rate limit of 14.76 Mbps, QPSK, rate 1/2, 19.68 Mbps 8PSK rate 2/3	
IBS Multiplex (Standard Built-In)	IBS framing supporting enhanced buffered RS-232/485 overhead channel, AUPC, remote modem control and variable overhead.	
Data Rate Selection: Transmit & Receive:	Programmable in 1bps increments. Accurate to 2 x 10E-12 (relative to reference).	
Receive Data FIFO Buffer: Plesiochronous or Doppler Elastic Store	4 bits to 524,280 bits, programmable in 1 bit increments, or in delay time.	
Data Interface (All synchronous).	RS-449/422 or V.35 or EIA-530 or RS-232 electronically selectable at DB-37 connector. DB25 and V.35 (M34) adaptors available.	
BER Performance: with Viterbi FEC rate: rate Viterbi +R-S Concatenated FEC: rate Viterbi +R-S Concatenated FEC: rate Turbo Product Codes FEC: rate Turbo Product Codes FEC:	10-7 at 6.0 dB Eb/No, 10-5 at 4.8 dB 10-7 at 3.7 dB, 3.5 dB typical (n=126, k=112) 10-7 at 4.7 dB, 4.5 dB typical 10-7 at 3.0 dB, 2.8 dB typical 10-7 at 3.7 dB, 3.5 dB typical	
Fast Receive Lock Performance at FEC rate 1/2, 6.0 dB Eb/No, +/-30kHz acquisition range: (Average)	315 msecond at 9.6 kbps QPSK or 175 msecond at 9.6 kbps BPSK or 71 msecond at 64 kbps QPSK	
Front Panel Control:	LCD display and keypad provide full status and programmability.	
Remote Control: Terminal Mode: Packet Mode:	Full screen live display and interactive control of all operating parameters and status. Command packet driven RS-232/485 control and reporting of all parameters and status.	
Input Power Requirements (without BUC):	90 to 264 VAC, 50/60 HZ, Approx. 40 Watts, 60 Watts maximum, fully loaded including LNB power.	
Operating Conditions:	0 to 50 C, to 95% humidity, non-condensing.	
Case Dimensions:	Rack mount @ 1 RU (19"W X 14"D X 1.75"H.)	
Colour	Grey	

Note: All specifications are subject to changes without notice.