OM20
Rugged Antenna Mount Modem

Overview

The OM-20 is designed for GSM, VSAT and quick deploy applications. Performance that meets or exceeds industry standards, features that provide ease of integration and operation and the ability to withstand extreme environments, the OM20 can take it!

The transmit output port will drive up to 10 W C-band or a 8 W Ku-band block converter. The OM20 has been designed and built for outdoor use in extreme environments. The OM20 serves as a stand-alone outdoor modem that can be integrated with a block up-converter and LNB for a complete outdoor system solution. The OM20 supports all the requirements needed to monitor, control and operate remote sites. Outdoor equipment such as the OM20 can eliminate the expense of sheltering site equipment. With the ability to support IBS, IDR and DVB standards, the OM20 covers virtually all your satellite needs.

Typical Users

- Cellular Backhaul
- Government & Military

Common Applications

- Shelterless Deployments

Features

- Rugged weatherproof construction
- Easy installation and configuration
- Web browser capabilities
- 2.4 kbps to 20 Mbps, 1 bps steps
- BPSK/QPSK/OQPSK/8-PSK/16-QAM operation
- FEC - Viterbi, Reed-Solomon, Sequential, Trellis, Turbo Product Code
- Fully compliant with IESS-308/309/310/314/315
- Optional DVB to EN301-210 and EN300-421
- Standard RS-422 serial interface
- Optional data interfaces include Ethernet, G.703 and ASI
- Optional FSK M&C channel for smart BUC
- Built-in high-stability reference oscillator and DC voltage
- Independent RX/TX control

Enhanced Monitor and Control

The accessibility of the OM20 is exceptional. Remote control via RS-485 Serial port (RLLP) or 10Base-T SNMP Ethernet will control all of the modem features. Using the Ethernet port and a web browser, the modem is able to present its entire monitor and control functions on any PC or external terminal for easy setup and configuration. The web browser enables the user to interact more effectively with the OM20, both locally and remotely.

The following can be monitored via the remote terminal or PC:

- Alarm descriptions
- Transmitter power output level
- Receive input level
- Modem signal level
- Bit error rate
- Modem configuration

Specifications

OM20 BER Performance Guaranteed (Typical) at BERs Shown

Modulation/FEC	Code Rate	1 x 10^{-5}	1 x 10^{-6}	1 x 10^{-7}	1 x 10^{-8}	Data Rate Range
BPSK VIT	1/2	5.5 (5.1)	6.1 (5.7)	6.7 (6.2)	7.4 (6.8)	2.4 kbps - 5.0 Mbps
QPSK VIT	1/2	5.5 (5.1)	6.1 (5.7)	6.7 (6.2)	7.4 (6.8)	4.8 kbps - 10.0 Mbps
QPSK VIT	3/4	6.8 (6.3)	7.6 (7.0)	8.3 (7.7)	8.9 (8.4)	7.2 kbps - 15.0 Mbps
QPSK VIT	7/8	7.9 (7.2)	8.6 (7.9)	9.3 (8.6)	10.2 (9.4)	8.4 kbps - 17.5 Mbps
QPSK VIT R-S	1/2	3.8 (3.4)	4.1 (3.6)	4.2 (3.8)	4.4 (4.0)	4.8 kbps - 8.88 Mbps
QPSK VIT R-S	3/4	5.4 (4.7)	5.6 (4.9)	5.8 (5.1)	6.0 (5.3)	7.2 kbps - 13.33 Mbps
QPSK VIT R-S	7/8	6.5 (6.0)	6.7 (6.4)	6.9 (6.7)	7.2 (7.1)	7.8 kbps - 15.55 Mbps
QPSK SEQ	1/2	5.6 (5.1)	5.9 (5.4)	6.3 (5.8)	6.7 (6.2)	4.8 kbps - 2.048 Mbps
QPSK SEQ	3/4	6.1 (5.6)	6.5 (6.1)	7.0 (6.5)	7.4 (6.9)	7.2 kbps - 2.048 Mbps
QPSK SEQ	7/8	6.9 (6.4)	7.4 (6.9)	7.9 (7.4)	8.4 (7.9)	8.4 kbps - 2.048 Mbps
QPSK TPC	1/2	2.7 (2.4)	2.9 (2.6)	3.1 (2.8)	3.3 (3.0)	4.8 kbps - 9.54 Mbps
QPSK TPC	3/4	3.6 (3.2)	3.8 (3.4)	4.1 (3.7)	4.4 (4.0)	7.2 kbps - 15.0 Mbps
QPSK TPC	7/8	4.2 (3.9)	4.3 (4.0)	4.4 (4.1)	4.5 (4.2)	8.4 kbps - 17.5 Mbps
8-PSK TRE	2/3	7.8 (6.4)	8.7 (7.2)	9.5 (8.1)	10.2 (8.9)	9.6 kbps - 20.0 Mbps
8-PSK TRE R-S	2/3	5.8 (5.4)	6.2 (5.6)	6.5 (5.8)	6.7 (6.1)	8.9 kbps - 18.3 Mbps
8-PSK TPC	3/4	6.0 (5.6)	6.2 (5.8)	6.4 (6.0)	6.8 (6.3)	10.8 kbps - 20.0 Mbps
8-PSK TPC	7/8	6.9 (6.5)	7.0 (6.6)	7.1 (6.7)	7.2 (6.8)	12.6 kbps - 20.0 Mbps
16-QAM VIT	3/4	10.7 (9.9)	11.5 (10.7)	12.4 (11.6)	13.3 (12.5)	14.4 kbps - 20.0 Mbps
16-QAM VIT	7/8	11.9 (11.1)	12.7 (11.9)	13.5 (12.7)	14.3 (13.5)	16.8 kbps - 20.0 Mbps
16-QAM VIT R-S	3/4	8.9 (8.3)	9.1 (8.6)	9.3 (8.8)	9.5 (9.1)	13.3 kbps - 20.0 Mbps
16-QAM VIT R-S	7/8	10.3 (9.9)	10.5 (10.2)	10.8 (10.4)	11.0 (10.7)	15.5 kbps - 20.0 Mbps
16-QAM TPC	3/4	7.0 (6.7)	7.4 (7.1)	7.8 (7.5)	8.2 (7.9)	14.4 kbps - 20.0 Mbps
16-QAM TPC	7/8	8.0 (7.6)	8.1 (7.7)	8.2 (7.8)	8.3 (7.9)	16.84 kbps - 20.0 Mbps

Modulator

Modulation	BPSK, QPSK, and OQPSK (8-PSK, 16-QAM optional)
L-Band Tuning Range	950 to 2050 MHz in 1 Hz steps
Impedance	50 Ohm
Connector	Female Type SMA, (N-Type optional)
Return Loss	10 dB minimum
Output Power:	-20 to -45 dBm
Output Accuracy	±1.0 dB over frequency and temperature
Output Spectrum	Meets IESS-308/309/310 power spectral mask
Spurious	-55 dBc In-band -45 dBc Out-of-band
Harmonics	-45 dBc
On/Off Power Ratio	>60 dB
Scrambler	CCITT V.35 or IBS (others optional)
FEC	Viterbi, K=7 at 1/2, 3/4 and 7/8 Trellis 2/3 Turbo Product Code (optional) Per IESS-315 BPSK 21/44 Custom (N,K) Reed-Solomon QPSK/OQPSK 1/2, 3/4, 7/8 8-PSK/16QAM 3/4, 7/8 Legacy Turbo Rates: 0.495, 0.793
Outer Encoder Options	Reed-Solomon Intelsat (DVB optional)
Data Clock Source	Internal, RX recovered
Internal Stability	5 x 10-8
BUC DC Voltage	BUC 24 V @ 4 A maximum BUC 48 V @ 3A maximum (optional)
BUC Reference	10 MHz, 0 dBm ± 3 dB
BUC FSK	710/590 KHz nominal (optional)

Demodulator

Demodulation	BPSK, QPSK, and OQPSK (8-PSK, 16-QAM optional)
L-Band Tuning Range	950 to 2050 MHz in 1 Hz steps
Impedance	50 Ohm
Connector	Type N female
Return Loss	10 dB minimum
Spectrum	Intelsat IESS-308/309/310 compliant
Input Level	10 x log (Symbol Rate) – 100, ±12 dBm
Total Input Power	-10 dBm or +40 dBc (the Lesser) @ 64 Kbps, symbol rate dependent
FEC	Viterbi, K=7 at 1/2, 3/4 and 7/8 Rate, Rate Sequential 1/2, 3/4, 7/8 (optional) Trellis 2/3 Turbo Product Code (optional) Per IESS-315 BPSK 21/44 Custom (N,K) Reed-Solomon QPSK/OQPSK 1/2, 3/4, 7/8 8-PSK/16QAM 3/4, 7/8 Legacy Turbo Rates: 0.495, 0.793
Decoder Options	Reed-Solomon Intelsat (DVB optional)
Descrambler	CCITT V.35 or IBS (others optional)
Acquisition Range	Programmable ± 1 kHz to ± 255 kHz
Sweep Delay Value	100 msec to 6000 sec. in 100 msec steps
LNB Reference	10 MHz, 0 dBm ± 3 dB
LNB DC Voltage:	13, 15, 18, 20 VDC (750 mA maximum), Programmable

Plesiochronous Buffer

Size	0 ms to 64 msec
Centering	Automatic on underflow or overflow
Centering Modes	IBS: integral number of frames IDR: integral number of multi frames
Clock	Transmit, external, RX recovered or SCT (internal)

Monitor and Control

Remote RS-485	Ethernet 10Base-T
Terminal RS-232	Web browser
FSK	TERRASAT
CODAN Smart BUCs	

DMD20/DMD50/DMD2050 protocol compatible

Terrestrial Interfaces

Ethernet Port 10/100Base-T, DVB ASI, G.703 (optional)

OM20 Drop and Insert (Optional)

Terrestrial Data	1.544 Mbps or 2.048 Mbps, G.732/733
Line Coding	AMI or B8ZS for T1 and HDB3 for E1
Framing	D4, ESF and PCM30 (PCM 30C) or PCM31 (PCM 31C) for E1
Time Slot Selection	n x 64 contiguous or arbitrary blocks for drop or insert
Time Slots	TS1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 24, 30, 31
Data Rates	64, 128, 192, 256, 320, 384, 512, 640, 768, 960, 1024, 1280, 1536, 1920 Kbps
EFFICIENT D&I Closed Network	Satellite overhead 0.4%
Time Slot	1-31 Any combination

IBS/Synchronous Interface (Standard)

RS-422	All Rates, Differential, Clock/Data, DCE
ITU V.35	All Rates, Differential, Clock/Data, DCE
RS-232	(DCE up to 200 Kbps)

Physical, Power & Environmental

Dimensions (height x width x depth)	4.5" x 10" x 14" (11.43 x 37.33 x 24.76 cm)
Weight	15 lbs (6.8 kg)
Prime Power	100 to 240 VAC, 50 to 60 Hz, 250 W maximum 50 W for modem, 200 W max. for 24V BUC/LNB
Operating Temperature	-40 to +50°C
Non-Operating Temperature	-40 to +70°C
Rain Resistance	< 20 inches/hour
Wind Resistance	< 150 mph
Altitude	To 10,000 feet (3,048 m) AMSL

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