



CM601A

PSK Digital Satellite Modem



Radyne ComStream high-performance modem reliability and network management in a one-rack-unit-high chassis

HIGHLIGHTS

- ▶ Complete 9.6 Kbps to 512 Kbps Modulator/Demodulator
- ▶ Optional extended range 9.6 Kbps to 5 Mbps
- ▶ Modulator/Demodulator Fully Independent
- ▶ Dual Band: 50-90 and 100-180 MHz operation
- ▶ Ultra Low cost
- ▶ QPSK, BPSK
- ▶ Compact 1-RU platform
- ▶ Available with Viterbi, Sequential, Turbo, or Reed-Solomon FEC
- ▶ Universal RS-422, RS-232, V.35 Interface
- ▶ Integral Doppler Buffer

OVERVIEW

The Radyne ComStream CM601A modem is the low-cost, High-Performance, High-Reliability solution for data transmission in a satellite-network environment. Based on Radyne ComStream's modular modem technology, the CM601 is a 3-card design that includes an Integrated Mod/Demod/Doppler Buffer/Universal Interface card, Option card which can provide additional features such as Turbo or Reed-Solomon FEC, and a Monitor & Control card. The independent cards, or stand alone modules (SAMs), work together as a system. The SAM's are installed or changed by simply sliding them in

or out of the chassis at the rear panel-simplifying upgrades and sparing. Each module contains its own microprocessor and nonvolatile memory, allowing it to store individual configurations and run comprehensive self-test operations.

Individual Monitor & Control (M&C) for each CM601A unit is accessed through the Front Panel, or Remote ASCII terminal. Additionally, the unit may be controlled with Radyne ComStream's exclusive Windows 95®/NT® virtual control panel, an easy-to-use graphical user interface program. Full network remote M&C is offered using the optional Satellite Control Channel card and SNMS software.

The CM601A is particularly well suited for single channel per carrier (SCPC) star networks requiring multiple modems at the hub, and SCPC demand-assigned (DAMA) networks requiring low cost traffic modems.

The CM601A can also interoperate with standard, full-featured CM701 modems. Complete Compatibility means the CM601A can be operated with the CX101/801 line of redundancy switches or full-featured CM701 modems. Complete compatibility also means CM701 option cards, such as the Reed-Solomon codec, and Satellite Control Channel, can be installed in the CM601A modem.

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The CM601A modem rear view illustrating option card slot, modem card, and M&C card

SPECIFICATIONS

GENERAL

Data Rate QPSK: Uncoded - 9.6 Kbps to 512 kbps
 7/8 Rate - 9.6 Kbps to 512 kbps
 3/4 Rate - 9.6 Kbps to 512 kbps
 1/2 Rate - 9.6 Kbps to 512 kbps

Data Rate QPSK: Coded - 9.6 Kbps to 5 Mbps
 7/8 Rate - 9.6 Kbps to 4 Mbps
 3/4 Rate - 9.6 Kbps to 3 Mbps
 1/2 Rate - 9.6 Kbps to 2.5 Mbps

Flexibility: Variable rate (1-Bps resolution)
Symbol Rates: 4.8 Ksps to 2.5 Msps
Modulation Types: BPSK, QPSK
Code Rates: Viterbi 1/2, 3/4, 7/8
 Sequential 1/2, 3/4
 Turbo 0.79, 0.33, 0.5

Data Interfaces: RS-449, V.35, RS-232
Others available as Option Card

Scrambling: Radyne ComStream, IESS, V.35

IF Frequency

range: 50-90 MHz and 100-180 MHz
Step size: 1 KHz

Output Clock Selection

Internal: ST
Transmit: TT
 RT with buffer bypass

Doppler Buffer

Size Selection: 64 - 262,144 bits
System Reference
Stability: ±1 ppm

Performance

BER Performance: Viterbi rate 1/2: 6.5 dB Eb/N0 for 10⁻⁷ BER
 Viterbi rate 3/4: 8.0 dB Eb/N0 for 10⁻⁷ BER
 Viterbi rate 7/8: 9.4 dB Eb/N0 for 10⁻⁷ BER
Sequential rate: 1/2 at 56 kbps: 5.4 dB Eb/N0 for 10⁻⁷ BER
Sequential rate: 3/4 at 56 kbps: 6.2 dB Eb/N0 for 10⁻⁷ BER

MODULATOR

Transmit Power: Power range: -5.0 to -25.0 dBm
 Resolution: 0.1-dB steps
 On/off isolation: > 60 dB
Spectral Shape: Radyne ComStream closed network, IESS 308
Spurious Emissions: < -50 dBc in-band, -45 dBc out-of-band

DEMODULATOR

Receive Level: -20 dBm to -45 dBm
Aggregate: +20 dBc or -5 dBm
Acquisition Range: Programmable to maximum ± 50 kHz

OPTION CARDS

Reed-Solomon Coding
Satellite Control Channel
Data Interface - Various
Turbo Codec
Framing Unit Option Module

MONITOR AND CONTROL

All features are software-selectable:

Control:

Modulator, Demodulator Independent,
Modulation Type, Code Rate, Data Rate, Scrambler Type,
Diff Enc Enable, Transmit, Power Level, IF Frequency, Int/Ext
Timing, Acquisition Parameters, Spectral Inversion, Transmit
Enable, Loopback Enable, Interface Type, Modem ID, Fault Mask,
Filter Type

Monitor:

Parameter Display, Eb/No, AGC Level, Demod Lock, Fault History
Present Status, Receive Freq Offset, Channel Error Rate

MECHANICAL/ENVIRONMENTAL

Width: 42.5 cm (17") rack-mountable Depth: 40.6 cm (18")
Height: 4.5 cm (1.75"), 1 RU Weight: <5.5 kg (12.1 lbs.)

Temperature

Operating: 0°C to +50°C
Nonoperating: -20°C to +70°C

Humidity

Operating: 5% to 95% noncondensing
Nonoperating: 0% to 100% noncondensing
Altitude: 3,050 meters (10,000 feet)

Power

AC input: 90-264 V, 47-63 Hz (autoranging)
Usage (typical): 35 watts

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