



SATSTREAM

21431 QPSK SATELLITE UPLINK MODULATOR



FEATURES

- Voice grade audio and serial data capabilities
- Selective addressing: unit, group, region, all
- Narrow bandwidth for reduced satellite costs
- Software setup of frequency and features
- Flexible bandwidth allocation between voice and data
- Need not rely on terrestrial networks for infrastructure
- Optional Emergency Alert System capabilities
- SCPC or FM Subcarrier on video - FSK modulation

APPLICATIONS

- News and weather text distribution
- Low resolution graphics distribution
- Selective distribution of news wires
- Low cost back haul audio circuits
- Emergency notification systems
- Remote control systems
- Remote pager or sign controller
- Highway information systems audio feed

DESCRIPTION

The Satstream 21431 QPSK Satellite Uplink Modulator generates L band, 50-90 MHz or Video FM Subcarrier uplink signals with full frequency programmability

The 21431 Modulator is designed to provide reliable low speed data or voice grade communications using minimum satellite transponder bandwidth for lower satellite bandwidth charges. Data rates supported range from 2400 to 12000 bits per second with bandwidths of 10 to 30 KHz. The modulator is configurable via a serial port or the optional keypad and display. Configuration is stored in non-volatile memory. Channel frequency is accurately controlled by means of direct digital synthesized local oscillator with a precision reference.

The selective addressing feature allows voice and/or data to be directed to specific individual units, units of a common group or region ID code, or to all units. In absence of active voice channel usage, the full bandwidth of the system becomes available for data.

Standard 1 RU Rack Mount version is standard, however a smaller footprint desktop version is also available. The receiver includes a switchable universal AC power supply.

EMERGENCY ALERT - OPTION Z

SCPC FM FSK is a simple and time proven technology that does not need to rely on complex terrestrial infrastructure making it ideal for mission critical communications that must work faultlessly in time of disaster. The EAS option provides additional features that allow the receiver to act as a repeater for EAS notifications. All segments of the standard EAS broadcast are digitized and packeted at the uplink modulator.

Approximately 5000 bits per second of the data stream are dedicated to the EAS broadcast when it is enabled. At the receiver the incoming EAS packets are interpreted. Precision frequency Alert Tones and FSK data are locally synthesized in the receiver. EAS audio is inserted in the audio output stream in accordance with the timing captured at the uplink modulator. By regenerating all tones and voice messages locally, distortion and possible corruption of the data is minimized. A push to talk output is available to activate dispatch systems automatically. A loss-of-signal alert output is also provided. When not carrying an active EAS message, the available bandwidth may be used to transmit other data—text or graphics.



SATSTREAM

21431 QPSK SATELLITE UPLINK MODULATOR

SPECIFICATIONS

Output Frequency Range

SCPC Version (Option A)
 SCPC Version (Option B)
 SCPC Version (Option B1)
 Subcarrier Version (Option F)

50.00 – 90.00 MHz (Transceiver IF)
 950 – 1450 MHz (Standard L Band)
 950 – 1750 MHz (Extended L Band)
 100 KHz – 8.995 MHz

Frequency Resolution

SCPC 500 Hz or better Subcarrier 50 Hz or better

Frequency Accuracy

Within +/- 0.6 ppm (7.5 KHz at Ku band)

Uplink Output Reference

10.000 MHz within +/- 0.6 part per million
 Aging of less than 0.5 ppm per year

Modulation

QPSK with spectral shaping to minimize bandwidth
 Pseudorandom scrambling for energy dispersal

Forward Error Correction

Proprietary 3:2 bit correction algorithm (or none)
 Optional Viterbi FEC $\frac{1}{2}$ or $\frac{3}{4}$ K = 7

Audio Data Rates (Option V or Z)

Selectable 2400, 3200, 4000, 4800, 7200, 9600 bps

Audio Input (Option V or Z)

Voice grade output, unbalanced low impedance

Control/Supervisory Serial Port

DB9 RS232
 Configurable rates 1200-19200 bps

Auxiliary Serial Data Port

DB9 RS232 or RS485
 Configurable rates 1200-19200 bps

Relay Contact Closure Port

1 General Fault NO contact (Form A)

Power Requirements

90-260 VAC 48-63 Hz less than 30 VA

Dimensions

Standard rack mount: 1RU 19" Rack
 19" wide x 1.75" high x 7.0" deep (48.26 x 4.45 x 17.8 cm)

Option T: Desktop Version
 7.6" wide x 1.95" high x 7.0" deep (19.3 x 4.95 x 17.8 cm)

DESCRIPTION OF OPTIONS FOR MODEL 21431

A:	SCPC Output Frequency	50.00 – 90.00 MHz
B:	SCPC Output Frequency	950 – 1450 MHz (standard)
B1:	SCPC Output Frequency	950 – 1750 MHz
C:	FM Subcarrier Output Freq.	100 KHz – 8.995 MHz
E:	Ethernet LAN Interface	Supervisory and control port
P:	Telephone Modem	Supervisory and control port including SMTP
R:	Viterbi FEC	Viterbi FEC instead of proprietary simple FEC
S:	LCD Status Display	Display and keypad for local manual setup
T:	Desktop Package	Desktop instead of normal rack mount configuration
V:	Voice Grade Audio	Compressed voice grade channel input
Z:	EAS Repeater	EAS audio input which is digitized and sent to receiver