

# SATSTREAM 21431

## QPSK SATELLITE UPLINK MODULATOR FOR NARROW BANDWIDTH APPLICATIONS



### 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 voice / data bandwidth allocation
- Need not rely on terrestrial networks or infrastructure
- Optional Emergency Alert System capabilities
- SCPC or FM Video Subcarrier - QPSK modulation

### 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 the absence of active voice channel usage, the full bandwidth of the system becomes available for data.

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

### APPLICATIONS

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

### EMERGENCY ALERT- OPTION Z

SCPC QPSK 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 features that allow the receiver to act as a repeater for EAS notifications. All segments of the standard EAS broadcast are digitized and packetized at the satellite 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 QPSK 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 FSK and alert tones and voice messages locally, distortion and possible corruption of the data is minimized. A push to talk signal may be sent to activate dispatch systems automatically. A modulator failure warning contact closure output is provided. When not carrying an active EAS message, the available bandwidth may be used to transmit other data, text or graphics.

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# SATSTREAM 21431 SPECIFICATIONS

<b>Modulator Output Frequency Range</b>	
SCPC Version (Option A)	50.00 – 90.00 MHz (transceiver IF)
SCPC Version (Option B)	950 – 1450 MHz (standard L band)
SCPC Version (Option B1)	950 – 1750 MHz (extended L band)
Subcarrier Version (Option F)	100 KHz – 8.995 MHz (video subcarrier)
<b>Frequency resolution</b>	SCPC 500 Hz or better Subcarrier 50 Hz or better
<b>Frequency accuracy</b>	Within +/- 0.6 ppm (7.5 KHz at Ku band)
<b>Uplink output reference</b>	10.000 MHz within +/- .6 part per million Aging of less than .5 ppm per year
<b>Modulation</b>	QPSK with spectral shaping to minimize bandwidth Pseudorandom scrambling for energy dispersal
<b>Forward Error Correction</b>	Proprietary 3:2 bit correction algorithm (or none) Optional Viterbi FEC 1/2 or 3/4 K = 7
<b>Audio Data Rates (Option V or Z)</b>	Selectable 2400, 3200, 4000, 4800, 7200, 9600 bps
<b>Audio Input (Option V or Z)</b>	Voice grade output, unbalanced low impedance
<b>Control/Supervisory Serial Port</b>	DB9 RS232 Configurable rates 1200-19200 bps
<b>Auxiliary Serial Data Port</b>	DB9 RS232 or RS485 Configurable rates 1200-19200 bps
<b>Relay Contact Closure Port</b>	1 General Fault NO contact (Form A)
<b>Power requirements</b>	90-260 VAC 48-63 Hz less than 30 VA
<b>Dimensions</b>	Standard rack mount: 1RU 19" Rack 19" wide x 1.75" high by 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)

<b>DESCRIPTION OF OPTIONS FOR MODEL 21431</b>	
A:	SCPC output Frequency 50.00 – 90.00 MHz
B:	SCPC output Frequency 950 – 1450 MHz (standard L band)
B1:	SCPC output Frequency 950 – 1750 MHz (extended L band)
C:	FM Subcarrier output Freq 100 KHz – 8.995 MHz (Video subcarrier)
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

