



## SATUC-4000

### C BAND UPCONVERTER WIDE IF BANDWIDTH



### WIDE FREQUENCY RANGE: 3.0 – 9.0 GHz

#### FEATURES

- Meets IESS 308/309 SATCOM Standard
- Phase Noise Exceeds IESS specification by 6 dB
- Non-Inverting Frequency Plan
- 31 dB Attenuation Range
- High Dynamic Range
- External 10 MHz Reference Input
- Fast Switching Synthesizer with 1 kHz Tuning Resolution
- Excellent Phase Noise Performance:  $< 0.5^\circ$  RMS
- 70 MHz IF Input
- Advanced Front Panel Alphanumeric Display
- Ethernet 10/100 BASE-T, RS232, RS422/RS485
- 1 U, 19" Rack Mount

#### APPLICATION

- SATCOM Converters



## SPECIFICATIONS AT 25°C

### OUTPUT CHARACTERISTICS

Frequency Range:	3.0 – 9.0 GHz
Tuning Resolution:	1 kHz
Synthesizer Tuning Speed:	1 millisecond (For faster tuning speed contact factory)
Converter Tuning Speed:	< 150 milliseconds
Frequency Accuracy vs. Temp (Internal Ref):	< +/- 0.1 PPM
Long Term Aging (Internal Ref):	< 1 PPM per year.
External Reference Input:	10 MHz at 0 +/- 3 dBm, Auto locking
Internal Reference Output:	10 MHz at 0 +/- 3 dBm
Phase Noise (Typ.):	0.5° RMS Integrated from 100 Hz to 10 MHz
Offset 10 Hz:	-54 dBc/Hz
Offset 100 Hz:	-72 dBc/Hz
Offset 1 KHz:	-80 dBc/Hz
Offset 10 KHz:	-85 dBc/Hz
Offset 100 KHz:	-95 dBc/Hz
Offset 1 MHz:	-110 dBc/Hz
Offset 10 MHz:	-115 dBc/Hz
Output P1 dB:	+11 dBm
Output Third Order Intercept:	+21 dBm
Impedance:	50 Ohms
Return Loss:	9.5 dB
VSWR:	2:1
Muting:	80 dB
Monitor:	20 dB

### INPUT CHARACTERISTICS

Frequency :	70 MHz ± 20 MHz
Impedance:	50 Ohms
Level without Damage:	+20 dBm
Return Loss:	20 dB
VSWR:	1.22:1
Input Third Order Intercept:	-5 dBm @ 20 dB Gain

### TRANSFER CHARACTERISTICS

Conversion Sense:	Non Inverting
Noise Figure:	13 dB
Image Rejection:	-70 dB min



## Spurious

Carrier Related	-65 dBc (up to 0 dBm output)
Non Carrier Related	-60 dBm
LO Leakage @ IF Input	-55 dBm
LO Leakage @ RF Output	-80 dBm

Gain: 30 dB min, 0.25 dB steps

Gain Flatness: 3 dB p-p max over output frequency

## Gain Stability:

Over Temp	2 dB over 0 to 50 deg C
At Constant Temp	+/-0.25 dB/day

Amplitude Response: +/-0.5 dB @ 70 +/- 20 MHz

## Group Delay

70 MHz IF, BW +/-18 MHz

Parabolic	0.02ns/MHz <sup>2</sup> (0.0040ns/MHz <sup>2</sup> )
Linear (+ or-)	0.05ns/MHz (0.03ns/MHz)
Ripple	1ns p-p

## BUILT IN TEST (BIT)

Power Supply Voltages, Three Phase Lock Alarm, Over Temp.

## CONTROL

Local Manual Control: All Functions, via Numerical Display Keyboard and Rotary Knob

Remote Programming: Ethernet 10/100 BASE-T , RS 422/ RS485 and RS232



## ENVIRONMENTAL

Operating Temp Range:	0° to +50° C
Non Operating:	-30° to +85° C
Relative Humidity:	Up to 95%, Non-Condensing
Altitude:	10,000 Feet
EMI:	Designed to Meet MIL-STD-461C, CE03 and RE02
Shock:	MIL-STD-810E, method 516.4, Procedure VI
Vibration:	MIL-STD-810E, method 514.4, Procedure I, Cat 9, Fig 514.4-15
AC Power:	95 to 265 VAC, 47-63 Hz, 100 Watts

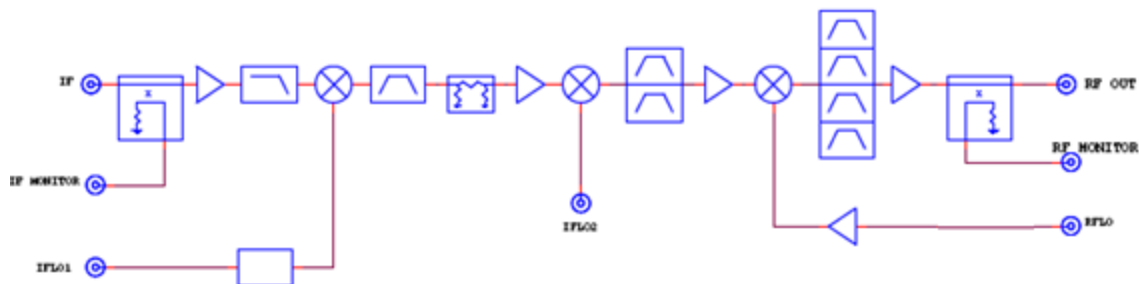
## MECHANICAL

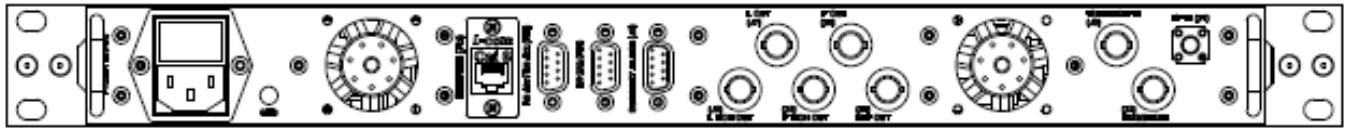
Size:	19", 1U (1.75" H X 22" D X 17" W)
Weight:	20 Pounds

## REAR PANEL CONNECTORS

3-9 GHz RF Output:	SMA-F
IF Monitor:	BNC-F
IF Input:	BNC-F
External REF IN, Out:	BNC-F, BNC-F
Ethernet:	RJ 45
RS-232	DE-9F
Summary Alarm:	DE -9M

### Up Converter Block Diagram Triple Conversion





REAR PANEL

*Specifications are subject to change without notice.*

## **ABOUT FEI-ELCOM TECH, Inc**

Elcom designs and manufactures instruments and modules in the RF and Microwave frequency spectrum for broadband and narrow band applications in ATE, Aerospace/ Defense, SIGINT and commercial communications. Proprietary technologies include low phase noise fast switching direct analog synthesis, low noise indirect PLL designs, and RF DSP up to 40GHz.

### **FOR ADDITIONAL INFORMATION PLEASE CONTACT**

*FEI-Elcom Tech, Inc.*

*11 Volvo Drive*

*Rockleigh, New Jersey 07647*

*Tel: (201) 767-8030*

*Fax: (201) 767-1326*

*[sales@fei-elcomtech.com](mailto:sales@fei-elcomtech.com)*

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