



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 | -80 dBm |
| LO Leakage @ RF Output | -55 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 ² (0.0040ns/MHz ²) |
| 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 |

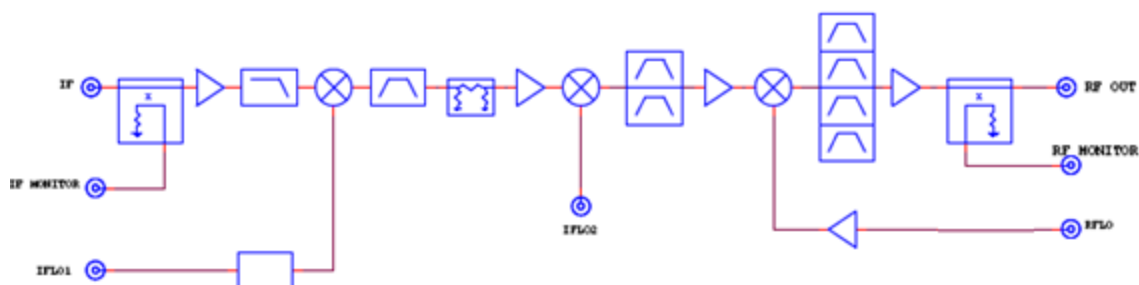
MECHANICAL

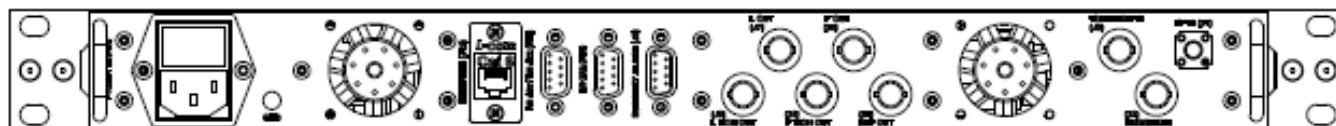
| | |
|---------|-----------------------------------|
| Size: | 19", 1U (1.75" H X 22" D X 17" W) |
| Weight: | 20 Pounds |

REAR PANEL CONNECTORS

| | |
|-----------------------|--------------|
| 3-9 GHz RF Output: | SMA-F |
| RF 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.

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