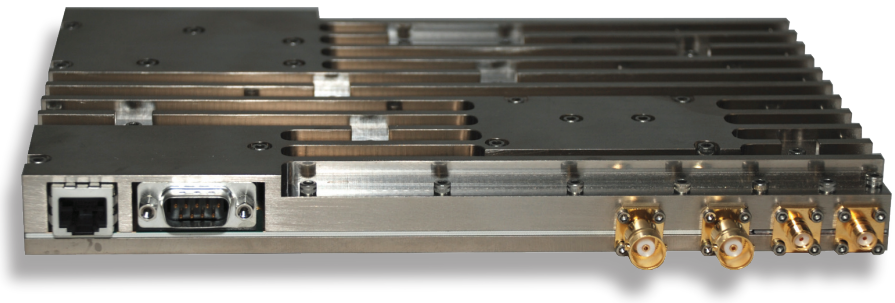
DUAL CONVERSION C- and Ku-BAND SATCOM FREQUENCY CONVERTER MODULES



STANDARD FEATURES

- Amplitude slope adjust
- RS422, RS485 and 10/100 Base-T Ethernet
- Serial output for Redundancy Switchover units
- Switchable 50/75 ohm IF impedance
- RF and IF monitor ports
- Low intermodulation distortion
- Phase noise 20 dB better than IESS-308/309
- 64 programmable memory locations
- 30 dB level control
- Independent input level control (upconverters only)
- External alarm input
- Elapsed time and event log after power turn on

The GeoSync Microwave converter modules are designed to simultaneously provide high performance, high reliability and high value, and are available for operation in either C - or Ku-band.

The low phase noise and excellent dynamic range of these converters enable them to carry almost any type of analog or digital communications signals.

Multiple remote connections and a robust protocol provide strong M&C support.

OPTIONS

- 140 MHz IF frequency
- Switchable 70/140 MHz IF frequencies

UPCONVERTERS

Model Number	RF Frequency (GHz)
UTM-572672	5.725-6.725
UTM-137148	13.75-14.8

DOWNCONVERTERS

Model Number	RF Frequency (GHz)
DTM-340420	3.4-4.2
DTM-107127	10.7-12.75

SPECIFICATIONS	UPCONVERTER	DOWNCONVERTER
Type	Dual conversion	
Frequency Step Size	1 kHz	
Frequency Sense	No inversion	

INPUT CHARACTERISTICS

Frequency	70 ±20 MHz (140 ±40 MHz, Option 6-1)	Refer to model number table
Impedance	50/75 ohm switchable	50 ohms
Return Loss	20 dB minimum	20 dB minimum
Signal Monitor	-20 dBc nominal	
Input Level (Non-damage)	+15 dBm maximum	

OUTPUT CHARACTERISTICS

Frequency	Refer to model number table	70 ±20 MHz (140 ±40 MHz, Option 6-1)
Impedance	50 ohms	50/75 ohm switchable
Return Loss	20 dB minimum	20 dB minimum
Signal Monitor	-20 dBc nominal	
Power Output (1 dB Compression)-		
C-band	+16 dBm minimum/+17 dBm typical	
Ku-band	+10 dBm minimum/+12 dBm typical	+16 dBm minimum/+17 dBm typical

TRANSFER CHARACTERISTICS

Gain	+31 to +34 dB at 23°C	+44 to +48 dB at 23°C
Level Control	30 dB in 0.2 dB steps	
Input Level Control	20 dB in 0.2 dB steps	N/A
Level Stability	±0.25 dB/day maximum at constant temperature ±0.5 dB typical from 0 to 50°C	
Amplitude Response	0.5 dB peak-to-peak/40 MHz maximum, 70 MHz IF 0.75 dB peak-to-peak/80 MHz maximum, 140 MHz IF (Option 6-1)	
Gain Slope	0.03 dB/MHz typical, 0.05 dB/MHz maximum (10 MHz minimum)	
Slope Adjust	±3 dB typical in 0.2 dB steps	
Noise Figure at Minimum Attenuation	N/A	11 dB maximum
Noise Power Density	-125 dBm/Hz maximum	N/A
Image Rejection	N/A	80 dB minimum
Group Delay (70±18 MHz)-		
Linear	0.03 ns/MHz maximum	
Parabolic	0.01 ns/MHz^2 maximum	
Ripple	1 ns peak-to-peak maximum	

TRANSFER CHARACTERISTICS *(Continued)-*	**UPCONVERTER**		**DOWNCONVERTER**	
Group Delay (140 ±36 MHz)-				
Linear	0.025 ns/MHz maximum			
Parabolic	0.0035 ns/MHz^2 maximum			
Ripple	1 ns peak-to-peak maximum			
Third Order Intermodulation Distortion With two inband signals each at 0 dBm, measured at the output				
C-band	55 dBc minimum (+27.5 dBm IP3)		60 dBc minimum (+30 dBm IP3)	
Ku-band	45 dBc minimum (+22.5 dBm IP3)		60 dBc minimum (+30 dBm IP3)	
AM/PM Conversion	0.1°/dB maximum to 0 dBm output			
Spurious Outputs (Inband)-				
Signal Related	65 dBc up to 0 dBm output			
Signal Independent	-80 dBm maximum			
LO Leakage at RF	-75 dBm maximum		-80 dBm maximum	
Frequency Stability	Same as reference			
Frequency Accuracy	Same as reference			
Frequency Reference	10 MHz, +4 ±3 dBm			
Phase Noise (dBc/Hz)-	Ku-band Units-			
With Maximum Reference Phase Noise: 10 Hz: -120 dBc/Hz, 100 Hz: -145 dBc/Hz, 1 kHz: -160 dBc/Hz		Offset	Maximum	Typical
		10 Hz	-65	-70
		100 Hz	-72	-82
		1 kHz	-87	-90
		10 kHz	-90	-92
		100 kHz	-90	-92
		300 kHz	-90	-93
		1 MHz	-115	-122
	C-band Units-			
		10 Hz	-70	-74
		100 Hz	-80	-84
		1 kHz	-90	-94
		10 kHz	-94	-97
		100 kHz	-94	-97
		300 kHz	-94	-97
		1 MHz	-116	-119
Upconverter Mute	80 dBm minimum		N/A	

OPTIONS

6-1. 140 MHz IF frequency

6-2. Selectable 70 MHz and 140 MHz IF frequencies. One IF connector provided (BNC female). Selection of IF frequency is available over the remote bus.

PRIMARY POWER REQUIREMENTS

Primary Power ..... +12 ±1V, 30 watts max.

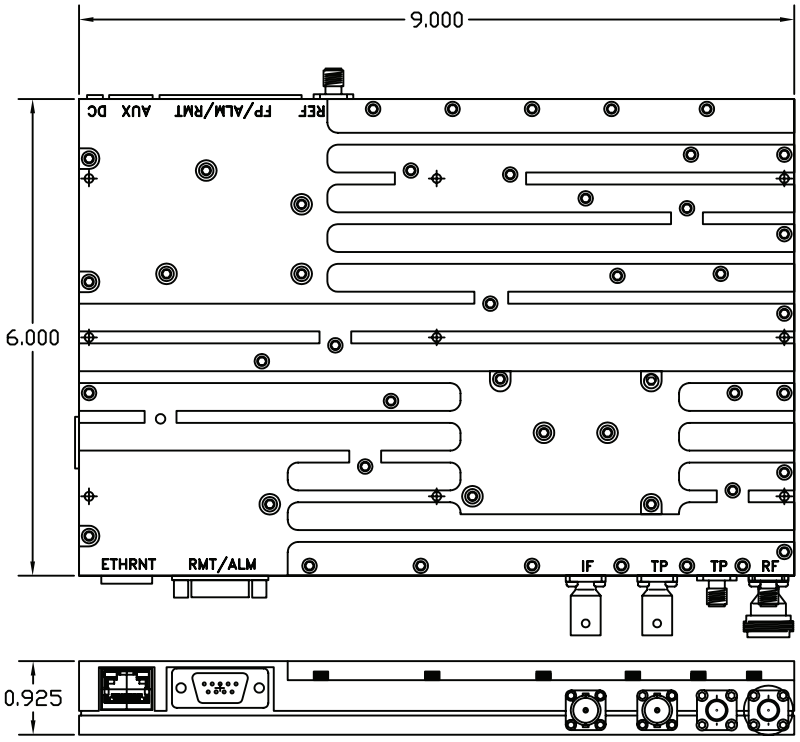
PHYSICAL

Weight ..... 3 pounds (1.4 kg), typical
Module Dimensions ..... 6" x 9" x 0.925"
Connectors -
- RF ..... SMA female
- RF Monitor ..... SMA female
- IF ..... BNC female
- IF Monitor ..... BNC female
- Frequency Reference ..... SMA female
- Alarm, RS422, RS485 ..... DE-9P
- Ethernet ..... RJ-45 female
- Primary Power ..... Molex 22-12-2024
- Auxiliary Control and Alarm Interface ..... 30 Pin, 100 mil header
- Auxiliary Analog Interface .. JST S5B-PH-SM4
  - Analog Input ..... 0–12V DC
  - Analog Output ..... 0–14V DC
  - DC Output ..... 15V at 0.5A unfused

ENVIRONMENTAL

Operating -
- Baseplate Temperature .... 0 to +60°C
- Relative Humidity ..... Up to 95% at 30°
- Altitude ..... Up to 10,000 feet

Non-operating –
- Ambient Temperature ..... -50 to +70°C
- Relative Humidity ..... Up to 95% at 40°
- Altitude ..... Up to 40,000 feet
- Shock and Vibration ..... Normal handling by commercial carriers



NOTE: FOR DESCRIPTION OF OPERATION REFER TO TECHNICAL NOTE GS6-TCN.

GeoSync Microwave, Inc. • 400 Oser Avenue, Suite 250 Hauppauge, NY 11788
Phone: 631 760-5567 • Fax: 631 780-0214 www.geosyncmicrowave.com