



OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS



STANDARD FEATURES

- Small sized weather resistant enclosure
- Amplitude slope adjust
- RS422, RS485 and 10/100 Base-T Ethernet
- Switchable 50/75 ohm IF impedance
- RF and IF monitor ports
- Automatic switching to external 5/10 MHz reference
- Electronic adjustment of internal reference frequency
- Low intermodulation distortion
- Phase noise IESS-308/309 compliant
- 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
- CE mark

DOWNCONVERTERS

Model Number	RF Frequency (GHz)
DTE-200240	2.0-2.4
DTE-340420	3.4-4.2
DTE-450480	4.5-4.8
DTE-800850	8.0-8.5
DTE-107127	10.7-12.75

These GeoSync Microwave Converters are designed to simultaneously provide high performance, high reliability, value, and are designed for antenna mounting. Models are available for operation in either S-, C-, X-, Ku- or DBS-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
- Reference clean-up loop and improved frequency stability

UPCONVERTERS

Model Number	RF Frequency (GHz)
UTE-200240	2.0-2.4
UTE-572672	5.725-6.725
UTE-670710	6.7-7.1
UTE-127132	12.75-13.25
UTE-127145	12.75-14.50
UTE-130146	13.0-14.6
UTE-137148	13.75-14.80
UTE-173184	17.3-18.4

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 1-1)	Refer to model number table
Impedance	50/75 ohm switchable	50 ohms
Return Loss	18 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 1-1)
Impedance	50 ohms	50/75 ohm switchable
Return Loss	18 dB minimum	
Signal Monitor	-20 dBc nominal	
Power Output (1 dB Compression)- C- and S-band	16 dBm minimum/17 dBm typical	
X-, Ku- and DBS-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 -40 to 60°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 1-1)	
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	70 dB minimum
Group Delay (70 ±18 MHz, 0 to 50C)		
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, 0 to 50C)-		
Linear	0.025 ns/MHz maximum	
Parabolic	0.0035 ns/MHz ² maximum	
Ripple	1 ns peak-to-peak maximum	
Third Order Intermodulation Distortion (Two tones each at 0 dBm output)-		
C- and S-band	55 dBc minimum (+27.5 dBm IP3)	60 dBc minimum (+30 dBm IP3)
X-, Ku-, and DBS-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	-75 dBm maximum	
LO Leakage at RF	-70 dBm maximum	-80 dBm maximum
Frequency Stability	±5 x 10 ⁻⁸ , -40 to 60°C	
Frequency Aging	5 x 10 ⁻⁹ /day, after 24 hours on time	
Frequency Accuracy	Same as Frequency Reference	
External Reference	5 or 10 MHz, +4 ±3 dBm Automatic switch to the internal reference if the external reference level falls below +1 dBm nominal	
Upconverter Mute	80 dBm minimum	N/A

PHASE NOISE

	Frequency Offset maximum/typical (dBc/Hz)						
RF BAND	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	300 kHz	1 MHz
S-BAND	-60/-63	-78/-81	-88/-91	-96/-99	-96/-99	-96/-99	-117/-120
C-BAND	-70/-74	-80/-84	-90/-94	-94/-97	-94/-97	-94/-97	-116/-119
X-BAND	-67/-72	-81/-85	-89/-93	-92/-95	-90/-94	-90/-94	-115/-122
Ku-BAND	-65/-70	-72/-82	-87/-90	-90/-92	-90/-92	-90/-93	-115/-122
DBS-BAND	-65/-70	-72/-82	-87/-90	-90/-92	-90/-92	-90/-93	-115/-122
Ka-BAND	-65/-70	-72/-82	-87/-90	-90/-92	-90/-92	-90/-93	-115/-122
Required maximum reference							
10 MHz	-120	-145	-160	-160			

REMOTE CONTROLS

Serial Interface	RS485/RS422
Ethernet Interface	10/100Base-T Ethernet interface providing:
	-HTTP-based web server
	-SNMP1.0 configuration
	-Alarm reporting via SNMPTrap
	-Telnet Access
	-Password protection

INDICATOR and ALARMS

Power	Green LED (front panel)
Status	Fault: Red LED, External Ref.: Amber LED (front panel)
Summary Alarm	Contact closure/open for DC voltage and local oscillator

OPTIONS

1-1. 140 MHz IF frequency

1-2. Selectable 70 MHz and 140 MHz IF frequencies.

One IF connector provided. Selection of IF frequency is available over the remote bus.

1-3 Reference clean-up loop and improved frequency stability

Reference oscillator acts as an analog phase lock with a 0.1 Hz nominal loop bandwidth.

Typical loop suppression of the external reference is as follows:

28 dB at 1 Hz offset

65 dB at 10 Hz offset

100 dB at 100 Hz offset

Frequency stability: $\pm 5 \times 10^{-9}$, -40 to 60°C

Frequency aging: 1×10^{-9} per day after 24 hours operation preceded by 10 days of operation

PHYSICAL

Weight 20 lbs (9.1 kg) nominal

Connectors-

RF SMA female

IF N female

RF Monitor SMA female

IF Monitor N female

External Reference..... SMA female

Status/Control Interface MS3116F14-18S type for
summary alarm, RS422,
RS485, and LNA power

Remote Interface RJ-45 female for
Ethernet RS485 available
on Status connector

Primary Power FCI clipper series
CL1M1102

ENVIRONMENTAL

Enclosure rating IP-65

Operating-

Ambient Temperature -40 to 60°C

Altitude Up to 10,000 feet

Non-operating-

Ambient Temperature -50 to 70°C

Altitude..... Up to 40,000 feet

Shock and Vibration Normal handling by
commercial carriers

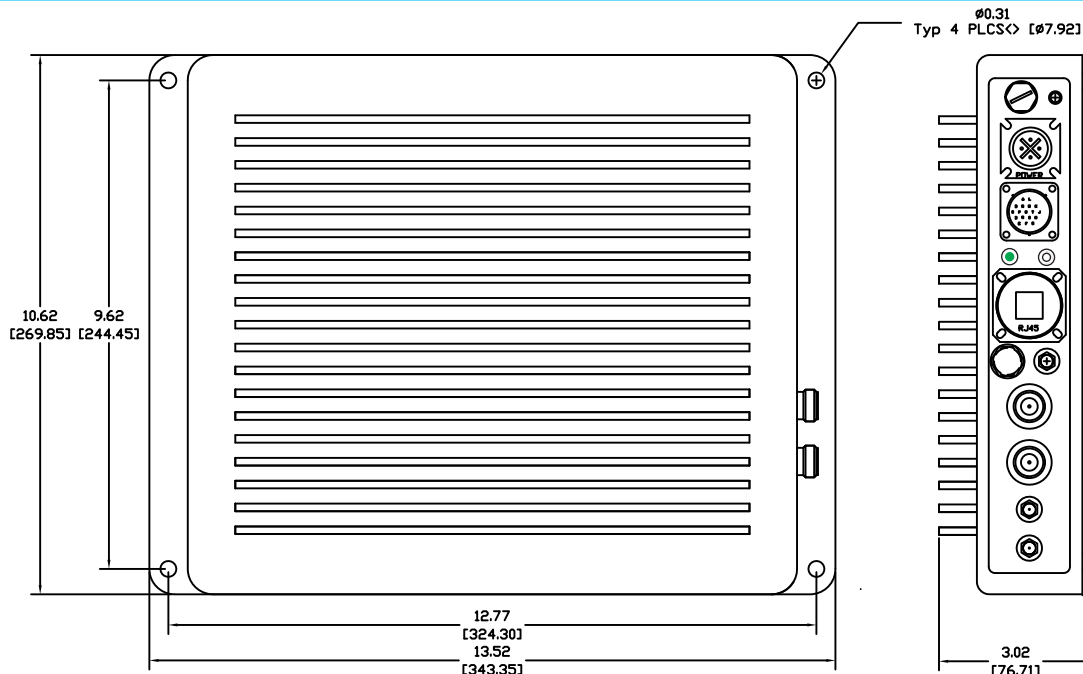
PRIMARY POWER REQUIREMENTS

Voltage..... 90-250 VAC

Frequency..... 47-63Hz

Consumption 16W typical

Fuse..... T1.25A



GeoSync Microwave, Inc. • 320 Oser Avenue • Hauppauge, NY 11788
Phone: 631 760-5567 • Fax: 631 780-0214 www.geosyncmicrowave.com



Note: All specifications at 23°C and maximum gain unless otherwise noted
GS28, REV E FEB 2017