

OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS

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.



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

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
UTR-137148	13.75-14.80
UTR-173184	17.3-18.4

DOWNCONVERTERS

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

SPECIFICATIONS (1/3)

Type
Frequency Step Size
Frequency Sense

UPCONVERTER

DOWNCONVERTER

Dual conversion
1 kHz
No inversion



OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS

SPECIFICATIONS (2/3)

	UPCONVERTER	DOWNCONVERTER
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 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 1-1) 0.03 dB/MHz typical, 0.05 dB/MHz maximum (10 MHz minimum)	
Gain Slope	±3 dB typical in 0.2 dB steps	
Slope Adjust		
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)		
Linear	0.03 ns/MHz maximum	
Parabolic	0.01 ns/MHz ² maximum	
Ripple	1 ns peak-to-peak maximum	
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 (Two tones each at 0 dBm output)		
C-band 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	



OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS

SPECIFICATIONS (3/3)

UPCONVERTER

DOWNCONVERTER

TRANSFERT CHARACTERISTICS (SUITE)

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

$\pm 5 \times 10^{-8}$ 40 to 60°C

Frequency Aging

5×10^{-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 dB 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	-90/-94	-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	-160	-160	-160

REMOTE CONTROLS

Serial Interface

RS485/RS422

Ethernet Interface

10/100 Base-T Ethernet interface providing:

- HTTP-based web server
- SNMP1.0 configuration
- Alarm reporting via SNMP Trap
- 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





EUROSATCOM
VSATECH ASSOCIÉ

OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS

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 and 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

PRIMARY POWER REQUIREMENTS

Voltage	90-250 VAC
Frequency	47-63 Hz
Consumption	16W typical
Fuse	T1.25A

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



EUROSATCOM
VSATECH ASSOCIÉ

3 avenue du Canada, bât. Zeta, 91940 Les Ulis, France

+33 1 69 18 19 30

www.eurosatcom.eu

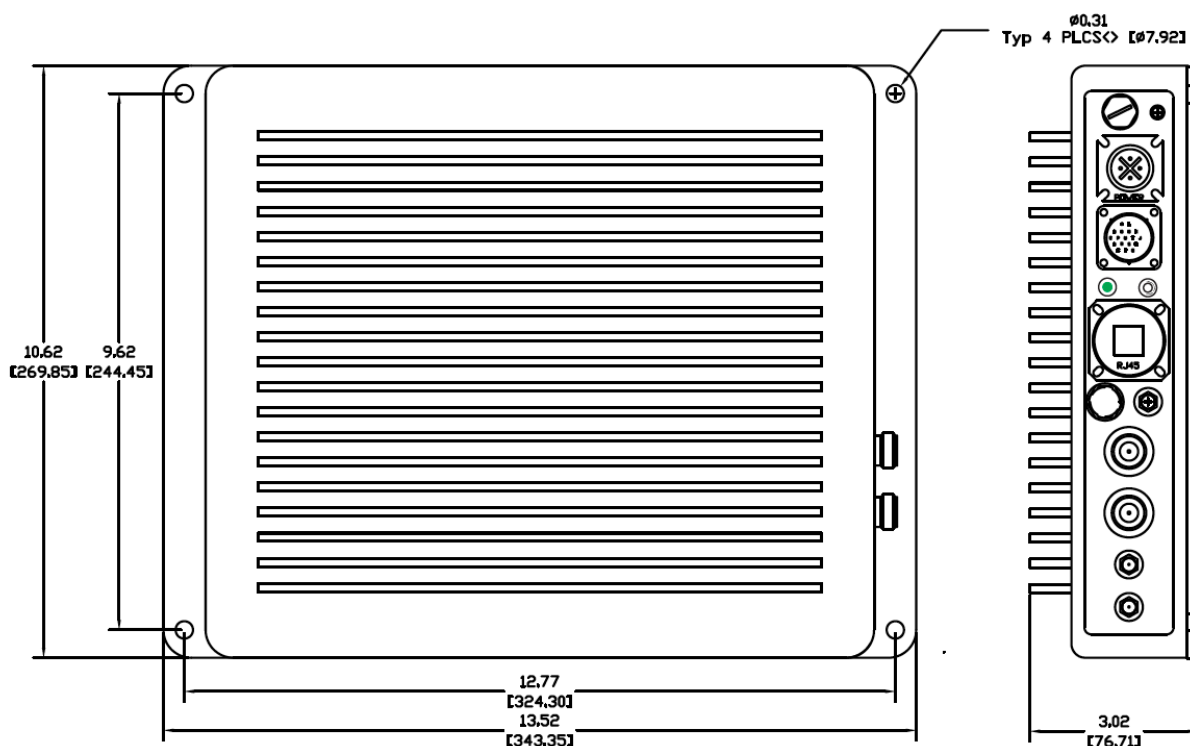
sales@eurosatcom.eu



OUTDOOR DUAL CONVERSION SYNTHESIZED SATCOM FREQUENCY CONVERTERS



EUROSATCOM
VSATECH ASSOCIÉ



EUROSATCOM
VSATECH ASSOCIÉ

GS28, REV E FEB 2017

3 avenue du Canada, bât. Zeta, 91940 Les Ulis, France

+33 1 69 18 19 30

www.eurosatcom.eu

sales@eurosatcom.eu

