



communications
Communication Systems-West

GMF X-band Downconverter Model 6167-03

The 6167-03 Downconverter provides plug-in compatibility with the GMF Downconverter (CV-3201) as installed in GMF Satellite Terminals such as the AN/TSC-93B.



SATCOM Component Upgrades

PRODUCT DESCRIPTION

The X-band GMF Model 6167-03 Downconverter is a repackaged Model 6167-01 designed for drop in replacement of existing GMF Downconverters. Power and signal connectors are compatible with existing GMF downconverter installation. Slide mount position and front panel rack mount hardware placement ensures drop in replacement of existing GMF hardware. It provides stable synthesized frequency selectability in 1 kHz steps and a bright LED readout display. The unit can be controlled and statused locally from the front panel or remotely over a RS-485 bus with 32 addresses. Dual front panel IF output ports for tracking and receive traffic carriers. The converter operates to an extended temperature specification of 56°C.

The 6167-03 successfully completed formal DISA certification testing while installed in an AN/TSC-93B with a complement of L-3 GMF Upconverters and Modems at Ft Monmouth in June, 1998. Testing included over the satellite interoperability testing with an AN/TSC-85 and the Control Terminal (OZ-52) at Ft Meade.

On July 31, 1998, full DISA certification was granted to the L-3 GMF hardware installed in GMF terminals. L-3 Communications will custom configure 11.3, 6.2, 4.5, 3.8, 2.4, 1.8 and 1.5 meter turnkey transportable or fixed earth terminals with COTS hardware to meet your specific requirements.

KEY FEATURES

- | | |
|---|-------------------------------------|
| • 7250 - 7750 MHz | • 25 lbs Max Weight |
| • 80 dBc Spurious Performance | • Simple Front Panel Local Controls |
| • 5.25" High Chassis 19" Rack Mount | • 1 kHz Frequency Resolution |
| • RS-485 Bus for Remote Operation | • -80 dBm LO Leakage |
| • External or Internal 5 MHz References Options | • No Frequency Inversion |

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SPECIFICATIONS

Model 6167-03 GMF X-band Downconverter

PHYSICAL CHARACTERISTICS

- Finish and color: Front panel -gray; Keypad - black
- Input power: 120 Vac-10%, 180 Watts, 45-65 Hz, single phase
- Dimensions: 19 x 5.25 x 15; 5.25" GMF front panel
- Cooling: 36 CFM fan, side to back
- Weight: 25 lbs max

PERFORMANCE CHARACTERISTICS

RF Input	
Frequency range	7250-7750 MHz
Impedance	50 ohms
Frequency selection	1 kHz steps
Mute RF level	-80 dBm max
IF Output	
Frequency range	70 – 20 MHz
Impedance	50 ohms
Signal level	+2 dBm max
RF / IF Performance	
Gain at midband	38 – 2 dB(0 dB attn)
Gain adjustment	20 dB continuous
Gain stability	.75 dB/ 15°C
Output at 1 dB compression	
- IF output	-0 dBm min
- Tracking Rx	-0 dBm min
Intermod distortion (3rd)	-56dBc or better with 2 test output carriers at 0 dBm
AM / PM conversion	0.1°/dB at 0 dBm output
Amplitude response	
- entire RF output band 2 dB p-p max	
- flatness per 36 MHz	1.0 dB p-p max
- flatness per 20 MHz	0.7 dB p-p max
Phase nonlinearity	
- nonlinearity per 36 MHz	4° p-p
- nonlinearity per 20 MHz	3° p-p max
Group delay	
- ripple	1 ns p-p max
Noise figure (0 dB attn)	17.5 dB max
Image rejection	90 dB min
Frequency sense	No inversion
Output Phase Noise (using internal reference)	
- 10 Hz -35 dBc/Hz max - 300 kHz -95 dBc/Hz max	
- 100 Hz -65 dBc/Hz max - 500 kHz -95 dBc/Hz max	
- 1 kHz -75 dBc/Hz max - 1 MHz -95 dBc/Hz max	
- 10 kHz -85 dBc/Hz max - 3 MHz -995 dBc/Hz max	
- 100 kHz -95 dBc/Hz max	
Spectrual purity (+5 dBm output)	
- 60 Hz -36 dBc max (<-48 dBc typical)	
- 60 Hz harmonics -39 dBc max (<-55 dBc typical)	
- 12 kHz to 20 kHz -54 dBc /3 kHz max	
- 20 kHz to 60 kHz -60 dBc /3 kHz max	
- 60 kHz to 300 kHz -68 dBc /3 kHz max	
- 300 kHz to band edge -70 dBc max	
- Outside of band -50 dBm max	
- Second harmonic -20 dBc max	

PERFORMANCE CHARACTERISTICS

5 MHz Reference

External input port	0 to 17 dBm
Impedance (nominal)	50 ohms
Internal 5 MHz	Provided
Internal ref output	0 dBm min
- Internal ref stability of 1 x 10 ⁻¹⁰	per/day
Signal Connectors	
RF input	N female, front
Tracking Rx	BNC female, front
IF output	BNC female, front
Auxillary 5 Mhz output	BNC female, front
Fault status	9 pin D, male, rear
RS-485 bus	9 pin D, female, rear
120 VAC input	power receptical
Chassis ground	8-32 UNC - 2A stud, rear
GMF power adapter supplied standard	
Local Control & Indicators	
Display: 16 x 1 alphanumeric LED of frequency and attenuation	
Keypad: 3 x 2 format, menu selects functions	
Status indicators	
- 70 MHz IF: LED, green	
- Fault: LED, red/green	
Environment	
Operating	
- Temperature 0 - 56 °C	
- Relative humidity 0 - 95%, non- condensing	
- Altitude pressure -120 to 10,000 ft	
- Vibration Sine, 1 g peak, 50 - 2000 Hz	
Non Operating	
- Temperature -42 °C to +70°C	
- Relative humidity 0 - 95%, non-condensing	
- Altitude pressure -120 to 40,000 ft	
- Shock & vibration 5 g peak, 20 ms, half-sine	

For further information on Model 6167-03 contact:

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