



MAXWELLON GMDC-A

0.5GHz to 67GHz

Multi-Octave Downconverter
2023

GMDC-A Series Multi-Octave Downconverter belongs to our microwave downconverter series that has a high performance and an octave overage by RF signal. Its frequency step is precise and accurate to 10Hz with a variety of IF and signal bandwidth choices.

This series of converter is mainly used for electronic countermeasure system, radar system, and satellite communication system. Its excellent phase noise, clutter suppression, and in-band flatness data can provide a transparent RF transmission channel to all videos or data communications. All programming commands can be set through a local panel or through network remotely. GM-DC-A series microwave downconverter is available in 2U/4U sizes.

Applications: T&M Systems/Satellite Communications/MIMO

■ Key Feature

- Multi-octave RF coverage (0.5 - 67GHz)
- 4GHz or above instantaneous signal bandwidth
- Amplitude Equalization and Group Delay Equalization
- Variety of commonly used IF and bandwidth combinations
- Excellent phase noise specification (67GHz): $\leq -100\text{dBc/Hz}@10\text{kHz}$
- Internal and external reference switching
- Remote programming

■ Specifications

Input Characteristics	
Input Frequency Range	GMDC20A: 0.5 to 20GHz
	GMDC26A: 0.5 to 26GHz
	GMDC40A: 0.5 to 40GHz
	GMDC50A: 0.5 to 50GHz
	GMDC67A: 0.5 to 67GHz
Frequency Tuning Step Size	10Hz
Maximum Input of Signal Power	-30dBm(operating), +10dBm(damaged) (+5dBm operating, ATT35 support)
Input LO Leakage	$\leq -80\text{dBm}$
Input VSWR	≤ 2.5
Input Impedance	50 Ω
Output Characteristics	
Output Frequency	70 $\pm$ 20MHz, 140 $\pm$ 40MHz, 0.72 $\pm$ 0.25GHz, 1.2 $\pm$ 0.25GHz, 1.2 $\pm$ 0.5GHz, 1.8 $\pm$ 1GHz, 3 $\pm$ 2GHz (select between single or multiple IF outputs)
P-1 Output Power	$\geq +13\text{dBm}$
IM3 Output	$\leq -60\text{dBc}$ (Δ 5MHz, Maximum gain, Power output: 2*-10dBm)
Output VSWR	≤ 1.4
Output Impedance	50 Ω

Transfer Characteristics		
Gain		10-45dB
Tuning Step Size		0.1dB
Gain Resolution		≤±1dB
Level Stability		≤±0.5dB/day at room temperature
Gain Flatness /Signal Bandwidth		≤±0.3dB/40MHz, ≤±0.5dB/80MHz, ≤±1dB/500MHz, ≤±1.5dB/1000MHz, ≤±2dB/2000MHz, ≤±3dB/4000MHz, ≤±2dB/Full Band
IF Inband Frequency Clutter/ Signal Related		≤-55dBc (0dBm output, excluding IF output harmonics)
IF Shutdown Feature		≥ 80dB
Noise Figure (max. Gain)		≤12dB (GMDC20A)
		≤15dB (GMDC26A)
		≤18dB (GMDC40A,GMDC50A,GMDC67A)
Image Rejection		≤-60dBc
Noise Figure (max. Gain)		≤18dB (GMDC40A,GMDC50A,GMDC67A)
Phase Noise (dBc/Hz)	@10Hz	≤-50
	@100Hz	≤-80(GMDC20A); ≤-75(GMDC26A,GMDC40A,GMDC50A,GMDC67A)
	@1kHz	≤-95
	@10kHz	≤-102(GMDC20A); ≤-100(GMDC26A,GMDC40A,GMDC50A,GMDC67A)
	@100kHz	≤-102(GMDC20A); ≤-100(GMDC26A,GMDC40A,GMDC50A,GMDC67A)
	@1MHz	≤-108(GMDC20A,GMDC26A); ≤-105(GMDC40A,GMDC50A,GMDC67A)
Reference Characteristics		
Internal Reference Frequency Stability		±2e-8 (0 C to +50 C , after 30min power on)
Internal Reference Frequency Accuracy		0.05ppm
Internal Reference Power Output		5±2dBm, 50Ω, 10MHz, Sine wave
External Reference Power Input		5±2dBm, 50Ω, 10MHz, Sine wave
Reference Phase Noise (dBc/Hz)	@10Hz	≤-125
	@100Hz	≤-140
	@1kHz	≤-150
	@10kHz	≤-155
	@100kHz	≤-155
Physical Characteristics		
RF Output Port		2.92mm-K(GMDC20A,GMDC26A,GMDC40A) 2.4mm-K(GMDC50A) 1.85mm-K(GMDC67A)
IF Input Port		SMA-K
I/Q Input Port		SMA-K
External Reference Input Port		BNC female
Internal Reference Output Port		BNC female
Control Interface		RJ-45 (TCP/IP over Ethernet) / RS422
Power Supply		AC,176-264VAC, 45Hz-65Hz, Power consumption 140W
Dimension		483mm*90mm*550mm (2U)(GMDC20A) 483mm*180mm*550mm(4U)(GMDC26A,GMDC40A,GMDC50A,GMDC67A)
Weight		15kg (2U)(GMDC20A) 25kg (4U)(GMDC26A,GMDC40A,GMDC50A,GMDC67A)
Environment		
Operating		Temperature: 0 C to +50 C , Humidify: up to 95% @30°C, Noncondensing, Height: 3000 meters
Storage		Temperature: -30 C to +70 C , Humidify: up to 95% @40°C, Noncondensing, Height: 12000 meters, Shock and Vibration: Regular road transport/air transport

■ Ordering Information

Models

Models	Name	Description
GMDC20A	Multi-octave downconverter	0.5 to 20GHz
GMDC26A	Multi-octave downconverter	0.5 to 26GHz
GMDC40A	Multi-octave downconverter	0.5 to 40GHz
GMDC50A	Multi-octave downconverter	0.5 to 50GHz
GMDC67A	Multi-octave downconverter	0.5 to 67GHz

Standard Package

No.	Name	Qty.
1	Multi-octave downconverter	1
2	Power Cord	1
3	Certificate of Calibration	1

Option

Models	Name	Description
GMDC-MA	IF/BW IF/Bandwidth	IF Output: 70±20MHz
GMDC-MB	IF/BW IF/Bandwidth	IF Output: 140±40MHz
GMDC-MC	IF/BW IF/Bandwidth	IF Output: 0.72±0.25GHz
GMDC-MD	IF/BW IF/Bandwidth	IF Output: 1.2±0.25GHz
GMDC-ME	IF/BW IF/Bandwidth	IF Output: 1.2±0.5GHz
GMDC-MF	IF/BW IF/Bandwidth	IF Output: 1.8±1GHz
GMDC-MG	IF/BW IF/Bandwidth	IF Output: 3±2GHz
GMDC-IQ	IQ Baseband Output	IQ Baseband Output
GMDC-ATT35	ATT35	Max, input of signal power increased from -30dBm to +5dBm



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