



MAXWELLON GMDC-C

2~4GHz / 4~8GHz / 8~18GHz / 18~26.5GHz / 26.5~40GHz / 18~40GHz

Microwave Downconverter

2023

GMDC-C Series Microwave downconverter is a broadband frequency converter that is dedicated for satellite communication. It has a high performance, high reliability and an octave covered by RF signal. Its frequency step is precise and accurate to 1Hz with a variety of IF and signal bandwidth choices. GMDC-C series is equipped with functions like self-testing and combination alarm which is suitable for long-time uninterrupted use, guaranteed safety and reliability.

GMDC-C series microwave downconverter is mainly designed for satellite communication system, signal monitoring system, and electronic countermeasure system with an excellent phase noise, clutter suppression, and in-band flatness data. It is able to 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. GMDC-C series microwave downconverter has a standard 2U size.

Applications: T&M Systems/Satellite Communications/MIMO

■ Key Feature

- Octave RF coverage (S, C, X, Ku, and Ka)
- 2GHz or above instantaneous signal bandwidth
- Amplitude Equalization and Group Delay
- Variety of commonly used IF and bandwidth combinations
- Excellent phase noise specification (40GHz): $\leq -100\text{dBc/Hz}@10\text{KHz}$
- Internal and external reference switching
- Remote programming
- Self-testing and combination alarm

■ Specifications

Input Characteristics	
Input Frequency Range	GMDC0204C: 2 to 4GHz
	GMDC0408C: 4 to 8GHz
	GMDC0818C: 8 to 18GHz
	GMDC1826C: 18 to 26.5GHz
	GMDC2640C: 26.5 to 40GHz
	GMDC1840C: 18 to 40GHz
Frequency Tuning Step Size	1Hz
Maximum Power Input	-30dBm(Operating), +10dBm(Damaged) (+5dBm operating, ATT35 support)
Input LO Leakage	$\leq -80\text{dBm}$
Input VSWR	≤ 1.4 (GMDC0204C, GMDC0408C)
	≤ 1.5 (GMDC0818C, GMDC1826C, GMDC2640C)
	≤ 2.2 (GMDC1840C)
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 (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
IF Signal Monitoring	-20dBc (typ.)

Transfer Characteristics		
Gain		10 - 45dB
Tuning Step Size		0.1dB
Gain Resolution		≤±1dB
Level Stability		≤±0.5dB/day at room temperature
Gain Flatness		≤±0.3dB/40MHz, ≤±0.5dB/80MHz, ≤±1dB/500MHz, ≤±1.5dB/1000MHz, ≤±2dB/2000MHz, ≤±2dB/Full band
IF Inband Frequency Clutter		Signal Related: ≤-60dBc(Δf ≤ 1MHz) , ≤-70dBc (Δf>1MHz) (0dBm output, excluding output harmonics)
		Signal Non-related: ≤-70dBm
Group Delay (80% Signal Bandwidth)		Linear: ≤0.03ns/MHz
		Parabola: ≤0.01ns/MHz²
		Jitter: ≤1ns
AM/PM Conversion		≤0.1º/dB (Maximum gain, 0dBm output)
Spectral Characteristics		Non-inverted
RF Shutdown Feature		≥ 80dB
Noise Figure (Maximum Gain)		≤12dB(GMDC0204C, GMDC0408C, GMDC1826C)
		≤15dB(GMDC0818C, GMDC2640C, GMDC1840C)
Image Rejection		≤-70dBc
Phase Noise (dBc/Hz)		≥ 80dB
Reference Phase Noise (dBc/Hz)	@10Hz	≤ -50
	@100Hz	≤-80(GMDC0204C, GMDC0408C, GMDC0818C); ≤-75(GMDC1826C, GMDC2640C, GMDC1840C)
	@1kHz	≤-105(GMDC0204C); ≤-100(GMDC0408C); ≤-95(GMDC0818C, GMDC1826C, GMDC2640C, GMDC1840C)
	@10kHz	≤-110(GMDC0204C); ≤-105(GMDC0408C); ≤-102(GMDC0818C); ≤-100(GMDC1826C, GMDC2640C, GMDC1840C)
	@100kHz	≤-110(GMDC0204C); ≤-105(GMDC0408C); ≤-102(GMDC0818C); ≤-100(GMDC1826C, GMDC2640C, GMDC1840C)
	@1MHz	≤-115(GMDC0204C, GMDC0408C); ≤-108(GMDC0818C, GMDC1826C); ≤-105(GMDC2640C, GMDC1840C);
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
IF 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 60W
Dimension		483mm*90mm *550mm (2U)
Weight		15kg
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
GMDC0204C	Microwave downconverter	2GHz to 4GHz
GMDC0408C	Microwave downconverter	4GHz to 8GHz
GMDC0818C	Microwave downconverter	8GHz to 18GHz
GMDC1826C	Microwave downconverter	18GHz to 26.5GHz
GMDC2640C	Microwave downconverter	26.5GHz to 40GHz
GMDC1840C	Microwave downconverter	18GHz to 40GHz

Standard Package

No.	Name	Qty.
1	Microwave Upconverter	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-ATT35	ATT35	Maximum input of signal power increased from -30dBm to +5dBm
GMDC-ST	Self-Testing and Combination Alarm	/



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