

2 GHz TO 18 GHz HIGH-PERFORMANCE ULTRA-BROADBAND UPCONVERTER

narda  **MITEQ**

UC SERIES MODEL UC-2/18G



FEATURES

- 600 \pm 500 MHz RF input
- 2 kHz tuning resolution
- Very low phase noise
- 2 GHz to 18 GHz output operating frequency range
- Gain programming -15 dB to +15 dB in 0.5 dB steps
- Programmable inverted or noninverted output spectrum sense
- Low intermodulation distortion
- Low output harmonic distortion
- Low spurious content
- Local programming via keypad entry
- Remote programming via RS-422/RS-485/RS-232 and Ethernet

OPTIONS

- Customized RF input frequency and bandwidth
- Customized system gain and programming resolution to 0.1 dB step
- Extended output frequency range
- Finer output frequency programming resolution
- Rotary knob control for entry of programmable parameters

The Narda-MITEQ model UC-2/18G is a very high-performance, ultra-broadband 2 kHz step size agile upconverter. This upconverter accepts RF input 600 \pm 500 MHz and provides RF output 2 GHz to 18 GHz. The frequency conversion sense can be programmed inverted or noninverted. The system has 15 dB gain with 30 dB of programmable attenuation in 0.5 dB steps. The excellent transfer characteristics make this upconverter ideal for most digital transmission and retransmission requirements. All system parameters are locally programmable by the front panel keypad or remotely programmable via RS-422/RS-485/RS-232 and Ethernet.

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SPECIFICATIONS

Input characteristics	
Center frequency	600 MHz
Bandwidth, f_{3dB}	1 GHz minimum
Attenuator range	0 dB to 30 dB
Programming resolution	0.5 dB
Operational level	
0 dB input attenuation (gain = +15 dB)	-15 dBm maximum
30 dB input attenuation (gain = -15 dB)	+15 dBm maximum
Maximum level	+20 dBm
Impedance	50 ohms
VSWR	1:8:1 typical, 2.5:1 maximum
Output characteristics	
Frequency	2 GHz to 18 GHz
P1dB compression point	+15 dBm
LO leakage outside the instantaneous BW of 1 GHz from 2 GHz to 18 GHz	-60 dBm typical
Impedance	50 ohms
VSWR	< 2.5:1
Transfer characteristics	
Conversion sense	Inverted or noninverted
Tuning step size	2 kHz
Tuning speed	< 70 msec
Gain	±15 dB
Programming range	-15 dB to +15 dB
Programming resolution	0.5 dB
Level stability	0.8 dB peak-to-peak maximum/day at 25°C, 1.2 dB p-p maximum from 0°C to 50°C
Amplitude response ripple in 1 GHz band across 2 GHz to 18 GHz	±0.8 dB typical, ±1.4 dB maximum over 80% of f_{3dB} bandwidth
Slope over 80% of bandwidth in 1 GHz band across 2 GHz to 18 GHz	0.5 dB typical, 1.2 dB maximum
Noise figure at maximum gain	22 dB typical, 26 dB maximum
Image rejection	70 dB minimum
Group delay	3.5 ns peak-to-peak typical over 80% of f_{3dB} bandwidth
Spurious outputs (gain = 0 dB)	
Signal-related	60 dBc typical, -15 dBm output
Intermodulation distortion	60 dBc typical, -5 dBm output
Harmonic distortion	60 dBc typical, -15 dBm output
Signal-independent (not LO related)	< -70 dBm
Frequency stability	± 2 x 10 ⁻⁸ , 0°C to 50°C fixed temperature after 24 hours power on
Phase noise	Offset from carrier 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz 10 MHz dBc/Hz maximum -63 dBc -73 dBc -82 dBc -92 dBc -102 dBc -123 dBc
Frequency reference	
Reference LO	Internal, external or auto selectable
External reference input	10 MHz, 4 dBm ±2 dBm
Internal reference output	10 MHz, 0 dBm, ±2 dBm
Local control	Via front panel keypad and LCD display
Programmable settings	Stored in nonvolatile memory
Local alarms	Power supply status LO lock status Fan failure Programmable temperature warning
Remote interface	RS-422, RS-485, RS-232 and Ethernet Programming

OPTIONS

Missing option numbers are not applicable to this product.

- UC1. Customized RF input frequency and bandwidth
- UC2. Customized system gain and programming resolution to 0.1 dB step
- UC3. Extended output frequency range
- UC4. Finer output frequency programming resolution
- UC5. Rotary knob control for entry of programmable parameters

ORDERING INFORMATION

The standard model complies with the specifications in this brochure. For customized options, please contact Narda-MITEQ.

GENERAL SPECIFICATIONS

PRIMARY POWER REQUIREMENTS

Voltage.....	90 VAC to 250 VAC
Frequency	47 Hz to 63 Hz

PHYSICAL

Weight.....	26 lb. [11.8 kg] nominal
Overall dimensions.....	19" [482.6 mm] x 3.5" [88.9 mm] (2RU) x 22" [558.8 mm] maximum
Rear-panel connectors	
RF input	SMA female
RF output.....	SMA female
External reference input.....	BNC female
Reference output	BNC female
Remote interface	DEM-9S for RS-422/RS-485/RS-232
Ethernet	RJ-45 (optional)
Alarm interface	DB-25P

ENVIRONMENTAL

Operating	
Temperature.....	0°C to 50°C
Full compliance temperature range.....	10°C to 40°C
Relative humidity	Up to 95% at 30 °C, noncondensing
Atmospheric pressure.....	Up to 10,000 feet (40,000 feet optional)
Nonoperating	
Temperature	-30°C to +70°C
Relative humidity	Up to 95% at 40°C, noncondensing
Shock and vibration	Rough handling

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TYPICAL REAR-PANEL VIEW



The material presented in this datasheet was current at the time of publication. Narda-MITEQ's continuing product improvement program makes it necessary to reserve the right to change our mechanical and electrical specifications without notice. If either of these parameters is critical, please contact the factory to verify that the information is current.

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