



Dual-Conversion
1 kHz or 125 kHz Step Size

SYNTHESIZED DUAL-CHANNEL DOWNCONVERTERS

For Tracking Applications



FEATURES

- Low phase noise
- Dual conversion
- Low intermodulation distortion
- No spectral inversion
- Summary alarm outputs

These dual-channel downconverters are designed to be used for tracking applications. The unit is available in frequency step sizes of 1 kHz or 125 kHz. Panel height is 3 RU. All units are fully compliant with INTELSAT requirements IESS 308/309.

These dual-channel downconverters operate in the C, X, and Ku communication bands. An internal synthesizer provides frequency tuning. Level control is available via the front panel or the remote control interface.

OPTIONS

- Higher stability reference
- High gain
- Remote RS422, RS232, IEEE-488, BCD contact closure or contact closure interface

SPECIFICATIONS

Input Frequency (GHz)	Model Number	Step Size (kHz)	Phase Noise Characteristics
3.4–4.2	DN2-9401-1	125	Curve 1
3.4–4.2	DN2-9401-1-1K	1	Curve 1
4.5–4.8	DN2-9402-2	125	Curve 1
4.5–4.8	DN2-9402-2-1K	1	Curve 1
7.25–7.75	DN2-9405	125	Curve 2
7.25–7.75	DN2-9405-1K	1	Curve 2
10.70–12.75	DN2-9408-6*	125	Curve 3
10.70–12.75	DN2-9408-6-1K*	1	Curve 3

* Refer to noise figure specification.

Type	Dual conversion
Tunability.....	First local oscillator only
Frequency sense	No inversion
Input characteristics	
Frequency	Refer to model numbers and table
Impedance	50 ohms
Return loss.....	20 dB minimum
Signal monitor.....	-20 dBc (Option 2A)
LO leakage	-80 dBm maximum
Output characteristics	
Frequency	70 ±2 MHz
Impedance	75 ohms (50 ohms optional)
Return loss.....	26 dB minimum
Power output (1 dB compression)	+15 dBm typical, +10 dBm minimum
Signal monitor.....	-20 dBc nominal
Transfer characteristics	
Noise figure.....	10 dB typical, 12 dB maximum, *12 dB typical, 15 dB maximum
Gain	30 dB nominal (higher gain optional)
Image rejection	80 dB minimum
Level stability	±0.25 dB/day maximum (constant temperature)
Channel-to-channel isolation	50 dB minimum
Channel-to-channel gain tracking	±1.0 dB/day maximum (constant temperature)
Channel-to-channel phase tracking	±2°/day maximum (constant temperature)
AM/PM conversion.....	0.1°/dB maximum to +5 dBm output
Spurious outputs	
Signal independent.....	-90 dBm max. -75 dBm max. (Option 16A), -65 dBm max. (Option 16C)
Signal related	65 dBc min. (for converters with RF frequencies below 8.5 GHz) 60 dBc min. (for converters with RF frequencies above 8.5 GHz),
Gain adjustment.....	30 dB, local and remote control
Gain adjustment step size.....	0.2 dB
Frequency stability	±2 x 10 ⁻⁸ , 0 to 50°C (higher stability options available), ±5 x 10 ⁻⁹ /day typical (fixed temperature after 24 hour on time)

SYNTHESIZED DUAL-CHANNEL TRACKING DOWNCONVERTERS

OPTIONS

- 2. A.** RF signal monitor.
Rear panel RF connector (SMA) with -20 dBc nominal level.
- 10.** Higher frequency stability reference.
A. $\pm 1 \times 10^{-8}$, 0 to 50°C,
5 x 10⁻⁹/day typical (fixed temperature after 24 hour on time).
B. $\pm 5 \times 10^{-9}$, 0 to 50°C,
1 x 10⁻⁹/day typical (fixed temperature after 24 hour on time).
C. $\pm 2 \times 10^{-9}$, 0 to 50°C,
1 x 10⁻⁹/day typical (fixed temperature after 24 hour on time).
- 15.** 50 ohm IF impedance.
- 16.** Higher gain option.
A. 45 dB nominal RF/IF gain.
C. 55 dB nominal RF/IF gain.
Specification of signal independent spurious increases with increase in RF/IF gain (e.g., if without option, specification is -90 dBm maximum, an increase of 15 dB in gain (Option 16A) will result in signal independent spurious of -75 dBm maximum).
- 17.** Remote control.
A. RS422.
B. RS485 (supplied as standard).
C. RS232.
D. Contact closure selection of up to sixteen preprogrammed frequencies.
F. IEEE-488.
G. BCD contact closure.
- 22.** Dedicated remote control panel.
Provides remote control and status over a dedicated RS485 bus. Option 17B (RS485 remote bus) must be ordered.
- 23.** 5 MHz reference configuration.
A. No internal 5 MHz reference is provided. A rear panel BNC female connector is provided for external 5 MHz input (+4 ±3 dBm).
B. An internal 5 MHz reference is provided. The internal 5 MHz reference is brought out of and back into the rear panel with a "U link" coaxial cable (BNC connectors). This allows, after "U link" removal, insertion of an external 5 MHz reference input (+4 ±3 dBm).
C. Internal/external reference selection.
An SPDT switch is used to select either the internal 5 MHz reference or an external 5 MHz reference. External 5 MHz reference input is through a rear panel BNC female connector (+4 ±3 dBm). Reference selection is controlled from a rear panel toggle switch.
D. Automatic reference switchover.
An internal 5 MHz reference and rear panel connector for external reference input (+4 ±3 dBm) is provided. The converter oscillators will lock to the external reference. If external reference is not present, the converter oscillators will automatically lock to the internal reference.

Notes: Missing option numbers are not applicable to this product.
For literature describing local control (front panel) and remote control (bus protocols), refer to MITEQ's Technical Note 25T010.



100 Davids Drive, Hauppauge, NY 11788
TEL.: (631) 436-7400 • FAX: (631) 436-7431/436-7430
www.miteq.com