

Ultra Low Noise Rubidium Frequency Reference

with Active Noise Filtering



APPLICATIONS

- Frequency Calibration
- Telecom Network Synchronisation
- Broadcast – Radio & TV
- HDTV
- Production Test Reference for instrumentation
- Microwave Test Bench or Test Solution
- Satellite communications

NATO

- A10-M NATO stock number version

FEATURES & BENEFITS

- High Performance Reference
- Multiple Output options
- Custom Frequency Outputs
- **High Reliability – 3 year warranty**
- Low Phase Noise Floor -165dBc/Hz (-170dBc/Hz option)
- Aging: 4×10^{-10} /year
- Stability to 5×10^{-13} /s
- 10MHz Standard Output
- 1–40MHz optional
- 100MHz option (-180dBc/Hz NF)
- 5MHz option (-123dBc/Hz @ 1Hz)



A10-M NATO stock number version

TYPICAL CHARACTERISTICS				
Output (100MHz ULN option)	10MHz, +7dBm into 50Ω, 0.5VRMS - see options			
Adjustment Mechanical Range Electrical Range Control Voltage Factory Setting	2x10 ⁻⁹ min 2x10 ⁻⁹ min 0 ~ 5V ±5x10 ⁻¹¹			
Frequency Stability typical	A10-M	A10-MX		
	STD	VLN	ULN	
	1s	3x10 ⁻¹²	8x10 ⁻¹³	5x10 ⁻¹³
	10s	2x10 ⁻¹²	5x10 ⁻¹²	2x10 ⁻¹³
	100s	8x10 ⁻¹³	4x10 ⁻¹³	4x10 ⁻¹³
1day	x10 ⁻¹²	1x10 ⁻¹²	x10 ⁻¹²	
Aging 1 day 1 month 1 year				
	3x10 ⁻¹²	1x10 ⁻¹²	5x10 ⁻¹³	
	4x10 ⁻¹¹	4x10 ⁻¹¹	4x10 ⁻¹¹	
	5x10 ⁻¹⁰	4x10 ⁻¹⁰	4x10 ⁻¹⁰	
Phase Noise dBc/Hz in 1Hz BW 1Hz 10Hz 100Hz 1kHz 10kHz 100kHz	Std	VLN	ULN	
	-90	-110	-115	
	-120	-140	-146	
	-135	-145	-156	
	-145	-155	-163	
	-150	-157	-169	
	-150		-170	
Harmonics	<40dBc			
Spurious	<80dBc			
Warm time to 1x10⁻⁹	5min			
Retrace after 24h off & 1h on, same temp	<3x10 ⁻¹¹			
Power Supply Power at steady state at 25°C	90 245V ac Battery Back Up option 13W @ 24V (22~30Vdc) @ 25°C, Max 2A			
Freq offset over output voltage range	<2x10 ⁻¹¹			
Temperature Operating Storage Freq offset over operating temperature range	-20°C ~ +50°C			
	-40°C ~ +70°C			
	<3x10 ⁻¹⁰			
Magnetic Field Sensitivity Atmospheric Pressure Approx MTBF, Stationary	<2x10 ⁻¹¹ /Gauss			
	-60m ~ 4000m <1x10 ⁻¹³ /mbar			
	Approx MTBF, Stationary			
Mechanical	88mm (3.5") 2U x 19" rack mounted			

OPTIONS

- Multiple Outputs
- 1 ... 40MHz Output Frequency
- Ultra Low Noise. 50 ... 100MHz Outputs (-180dBc Noise Floor)
- 24V dc Battery Back-up Input
- GPS Lock Input

A10-MX Uses Quartzlock DPPL-DDS Clean Up Loop Technology – active noise filter



A10-MX in a typical system reference application

EXTERNAL CALIBRATOR OPTION

Separate outputs are provided.

Calibrator outputs specification

Sinewave +13dBm 50 Ohm 1Vrms

Output frequencies:
1MHz, 5MHz, 10MHz, 100MHz, 1GHz

Ultra low frequency option for calibration use:

Specification
Square wave TTL output

Output frequencies:
From 0.01Hz to 500kHz in 1, 2 & 5 steps
(24 separate switched frequencies)

This ULF option is a separate module. This option includes a 1MHz square wave output from A10-M or A10-MX.

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