

NR7000-ROG

Miniature GNSS Locked OCXO Rubidium Reference



Low Noise OCXO and GNSS Lock Options

This atomic reference brings exceptional stability in a very small, low power and economic package. It offers a Rubidium reference, low phase noise and GNSS locking options in a 4.4" x 3.3" aluminum chassis. There is a 10 MHz low phase noise sine output, a 10MHz LVCMOS output, plus a PPS.

This atomic reference affords exceptional holdover stability of less than 0.3 ppb/month. Temperature stability of 0.5ppb. To further enhance stability, the Rubidium source is available with a GNSS locking option. All channels are monitored for a fault condition and built-in test monitors critical circuits which drives BITE and serial indicators.

Auxiliary output provides programmable LVCMOS frequency.

Rubidium Atomic Reference

Aging < 3E-10/month

Phase Noise

Offset (Hz)	Frequency Typical (dBc / Hz)
10	-125
100	-150
1K	-155
10K	-155

Output	10 MHz, 0.5 Vrms ± 0.2 , into 50 Ohms	
Accuracy at Shipment	$< \pm 1E-9$	
Monthly Aging	$< \pm 2E-11$ after 3 months of operation	
Locked	$< 2 E-11$	
Harmonic Distortion	< -30 dBc	
Alert	BITE, LED, Serial messaging	
Rubidium Atomic Frequency Standard:		
Accuracy at shipment	$\pm 1.0E-10$	
Warm-up time	< 15 minutes	
Time of lock	< 5 min -130 dBm	
Time to achieve accuracy	$< 1E-9$ < 15 minutes, (12 minutes)	
Aging - monthly	$< 5E-11$	
GPS Disciplining	GNSS receiver	
Time for valid output	< 12 minutes	
Frequency Accuracy	$< 1E-11$	
Stability: Allan Deviation		
1s	$< 3E-10$	
10s	$< 1E-10$	
100s	$< 3E-11$	
SSB Phase noise for 10Mhz		
	Standard	Low Noise Option
10Hz	< -95	< -125 dBc
100Hz	< -125	< -150 dBc
1000Hz	< -135	< -155 dBc
10000Hz	≤ -135	< -155 dBc
Amplitude for 10Mhz frequency output	0.5Vrms Sine, plus LVCMOS square	
Harmonic	< 30 dBc	
Non-Harmonic	< -80 dBc	
PPS		
Amplitude for 1PPS	3.3 Vdc CMOS (5 Vdc option)	
Pulse width for 1PPS	Programmable 0.1 to 500ms in 0.1ms steps	
Rise time for 1PPS	< 10 ns (faster edge available)	

Jitter	Two PPS modes- GNSS-PPS and stabilized PPS- GNSS-PPS < 6ns Stabilized PPS < 1 ns,
Connector	BNC
Load Impedance	50 Ohm
Location	rear
Remote interface & control	
Protocol	RS232
Connector	DB-25 Male we could specify whichever you think
Location	Rear panel
Protocol	Bit plus stop
Standard Baud Rates	Selectable 9600, 19200, 38400, 57600 or 115200 bps
GNSS receiver	
	GPS L1 C/A, GLONASS L1OF, QZSS L1 C/A, SBAS L1 C/A (Ready): Galileo E1B/E1C, QZSS L1S
Channels	26 channels (GPS, GLONASS, QZSS, SBAS)
Sensitivity	
GPS	Tracking: -161 dBm
	Hot Start: -161 dBm
	Warm Start: -147 dBm
	Cold Start: -147 dBm
	Reacquisition: -161 dBm
GLONASS	
	Tracking: -157 dBm
	Hot Start: -157 dBm
	Warm Start: -143 dBm
	Cold Start: -143 dBm
	Reacquisition: -157 dBm
	With Novus recommended antenna
Antenna with LNA	
Antenna power	3.5 Vdc, < 35 ma (on center conductor) (factory configurable to 5 Vdc)
Frequency	1574-1607 MHz
Nominal Gain	2 dBic
Amplifier gain	26 dB
Noise Figure	< 2.0 dB
Out of Band rejection	Fo±50MHz=60 dBc, Fo±60 MHz
DC current	<25 ma@3.5 Vdc
Main Power	
DC input	5Vdc (optional -60 to +60 in three ranges)
Power	<7 W (steady state < 4 W)
Warranty	1 year plus 3 year optional extended warranty from date of shipment

Environmental and Mechanical

Operating Temperature	-20 to 50°C non-condensing (optional extended temperature range)
Storage Temperature	-40 to 70°C
Height	1.4"
Width	3.3"
Depth	4.4" exclusive of connectors
Weight	<0.5 lbs

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