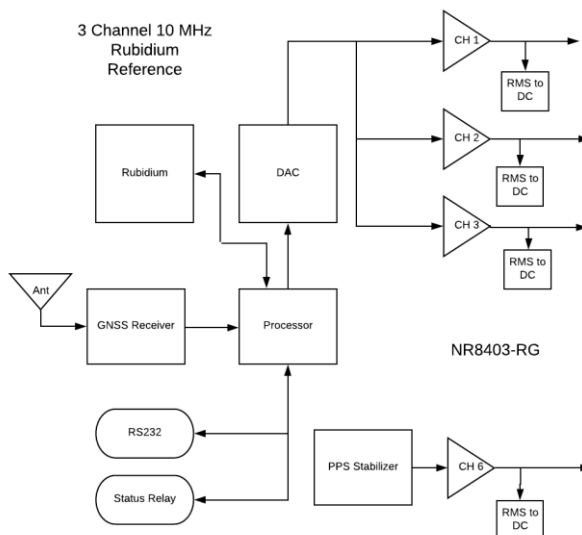


NR8403-RG

Three Channel GNSS Locked Rubidium Reference



Rubidium Based Reference

Holdover $< \pm 5E-11$ /Month

Phase Noise

Offset Frequency (Hz)	Typical (dBc / Hz)
10	-86
100	-120
1K	-135
10K	-140

This reference brings exceptional stability in an economical package. There are three 10 MHz outputs plus a PPS and NMEA. External locking options allows the unit to be locked to an external PPS or 10 MHz reference. The unit is available as a 10 MHz reference or 50 MHz.

Output		10 MHz, 0.4 Vrms ± 0.1 , into 50 Ohms
Accuracy at Shipment		$< \pm 1E-10$
Harmonic Distortion		< -30 dBc
Power		DC options and AC power adapter available- < 15 W start, < 10 W steady state
Alert		20Vdc/Vac, 0.1 Amp relay contacts- relay closed for normal condition, BNC
Warm-up time		< 15 minutes
Time of lock		< 5 min -130 dBm
GPS Disciplining		GNSS receiver
Rubidium Atomic		
Accuracy at shipment		$\pm 1.0E-10$
Warm-up time		< 15 minutes
Time of lock		< 5 min -130 dBm
Time to achieve accuracy		$< \pm 1E-9$ < 20 minutes
Aging - monthly		$< \pm 5E-11$
Retrace		$< \pm 1.0E-10$ after 1 Hour
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		
	10Hz	< -86 dBc/Hz
	100Hz	< -120 dBc/Hz
1000Hz		
PPS		
Amplitude for 1PPS		3.3 Vdc CMOS (5 Vdc option)
Pulse width for 1PPS		Programmable 1 to 500ms in 1 ms steps
Rise time for 1PPS		< 5 ns (faster edge available)
Connector		BNC
Load Impedance		50 Ohm
Location		rear

Remote interface & control	
Protocol	RS232 NMEA-0183
Connector	DB-9
Location	Rear panel
Protocol	Bit plus stop
Standard Baud Rates	Selectable 4800, 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	-60 to +60 in three ranges
Power	<6 W (steady state < 10 W)
Warranty	1 year

Environmental and Mechanical

Operating Temperature	0 to 50°C non-condensing
Storage Temperature	-40 to 70°C
Height	1.58"
Width	6"
Depth	6" exclusive of connectors
Weight	1.5 lbs

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