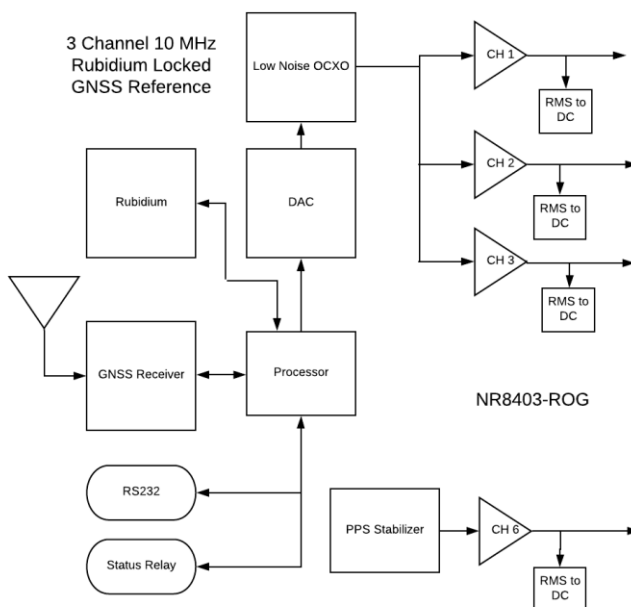
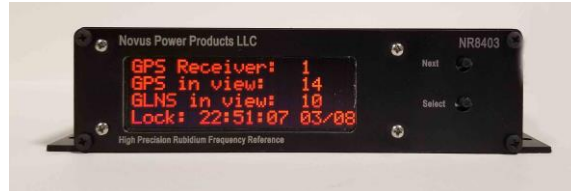


DATA SHEET NUMBER	NR8403-ROG
REVISION	A
DATE	050620

## NR8403-ROG

### Three Channel GNSS Locked Low Noise Rubidium Reference



### OCXO Based Reference

Holdover < +-1 ppb/year

### Phase Noise

Offset Frequency (Hz)	Typical (dBc / Hz)
10	-125
100	-155
1K	-160
10K	-160

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.

DATA SHEET NUMBER	NR8403-ROG
REVISION	A
DATE	050620

<b>Output</b>	10 MHz, 0.4 Vrms ±0.1, into 50 Ohms	
Accuracy at Shipment	<±5E-9	
Monthly Aging (unlocked)	<±3E-10 ppb/day after 3 months of operation	
Yearly Aging	<±1 ppb after 3 months operation (unlocked)	
Locked	<1 E-11	
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	
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	<-110dBc
100Hz	<-125	<150dBc
1000Hz	<-140	<-155dBc
10000Hz	<-145	<-160dBc
Harmonic	<40dBc	
Non-Harmonic	<-80dBc	
<b>PPS</b>		
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	<10 ns (faster edge available)	
Connector	BNC	
Load Impedance	50 Ohm	
Location	rear	

DATA SHEET NUMBER	NR8403-ROG
REVISION	A
DATE	050620

<b>Remote interface &amp; control</b>	
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
<b>GNSS receiver</b>	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
<b>Antenna with LNA</b>	
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
<b>Main Power</b>	
DC input	-60 to +60 in three ranges
Power	<6 W ( steady state < 10 W)
<b>Warranty</b>	1 year



DATA SHEET NUMBER	NR8403-ROG
REVISION	A
DATE	050620

## 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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