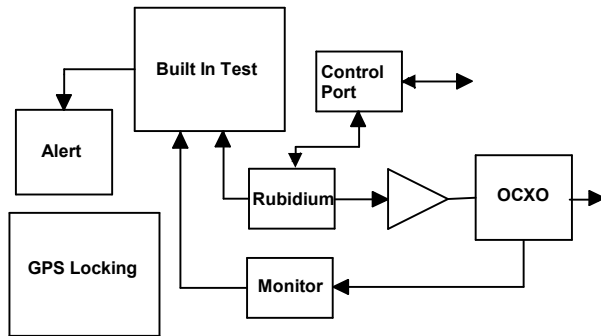


NR2110-R/O/G

10 MHz Frequency Reference, OCXO, GPS Locked, Rubidium, Dual Channel



KEY FEATURES



Rubidium reference affords long-term holdover stability. The long-term stability is further enhanced with timing information from the GPS. We offer two configurations - one with the GPS receiver built-in and the other with a connector that accepts an external PPS signal. Ultra low phase noise is achieved by locking a high performance OCXO to the Rubidium reference. You are basically getting the best of three technologies - low noise from the OCXO, mid-term stability from the Rubidium and achieving long-term stability of the GPS. The outputs are fault protected and monitored continuously.

Rubidium Source

Excellent aging

Typical Phase Noise

Offset (Hz)	dBc/Hz)
10	- 125
100	- 140
1K	- 145
10K	- 150

Extensive Built-in-Test (BIT)

The BIT comprehensively monitors critical functional elements of the system - power supplies, temperature, signal presence, oven status and channel faults. Any failure causes the alert relay to open. In redundant systems, the Novus NS0100 switch can be used to switch to a secondary source automatically.

Technical Specifications

10MHz sine output	13 dBm \pm 1.5 dB, 50 Ohm – BNC (optional amplitude settings)
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
Rubidium Atomic	
Accuracy at shipment	+/-1.0E-10
Warm-up time	<15 minutes
Time to achieve accuracy	< \pm 1E-9<20 minutes
Aging - monthly	< \pm 5E-11
Retrace	< \pm 1E-10 after 1 hour
Stability: Allan Deviation	
1s	<3E-10
10s	<1E-10
100s	<3E-11
SSB Phase noise for 10Mhz	
SSB Phase noise for 10Mhz	
	Standard
10Hz	< -125
100Hz	<-140
1000Hz	<-145
10000Hz	<-150 Bc
Harmonic	<40dBc
Non-Harmonic	<-80dBc
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
Connector	sma
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, < 25 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

Environmental and Mechanical

Operating temperature	-10 to 55C non-condensing
Storage temperature	-40 to 85C
Height	1.73" 1 RU
Width	19"
Depth	10"
AC input	90 to 264 VAC, 50/60Hz (optional DC)



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