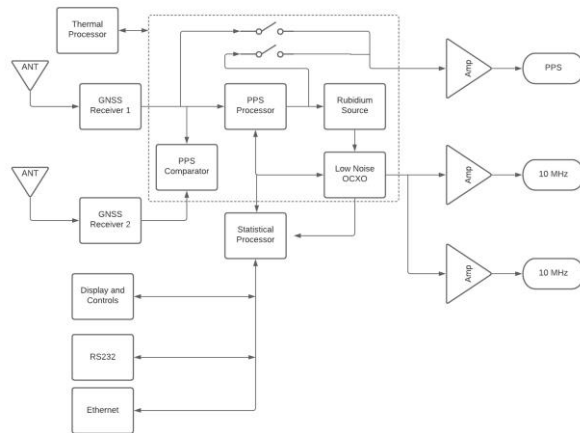
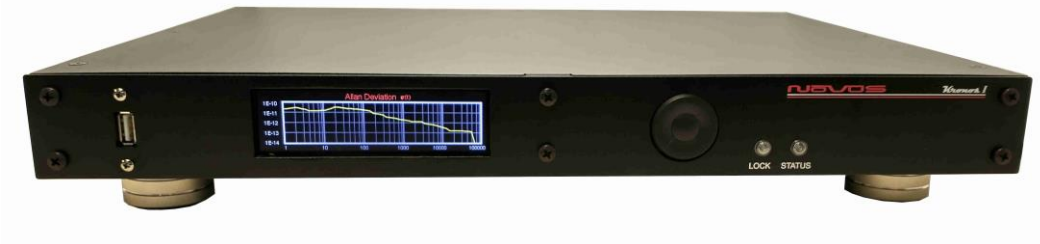


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# NR9000-Kronos1

## High Stability 10MHz 10 Channel GNSS Locked Reference with Networking



10 Channel GNSS locked reference featuring high stability. The entire timing assembly is in a thermally isolated case operating at a constant temperature. Thermal gradients are minimized and component variation with temperature are dramatically reduced. The unit also features a PPS source with a standard deviation of under 5 ns. Pulse to pulse jitter is well under 200ps. In addition to output amplitudes and internal critical measurements, the unit reports a continuous calculation of Allan Deviation. Various phase noise options are available. requirements. Dual power source options for AC and DC power. Data Logging of performance

### Networking

SNMP option

### Standard Phase Noise

Offset Frequency (Hz)	Typical (dBc / Hz)
10	-130
100	-150
1K	-155
10k	-160

### High Stability

Allan deviation E-13  
PPS Jitter < 5ns @ 1 sigma

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## Technical Specifications

Output	10 MHz, 1.0 Vrms $\pm 0.2$ , into 50 Ohms, 10 channels, Sine
Harmonic Distortion	< -30 dBc
First Year Freq Stability	$\pm 50$ ppb (unlocked)
Temperature Stability	$\pm 10$ ppb unlocked
Daily Aging OCXO	$\pm 5$ ppb/day unlocked
Yearly Aging	$\pm 50$ ppb unlocked
<b>PPS</b>	
Amplitude for 1PPS	3.3 Vdc CMOS (5 Vdc option) $\pm 100$ ma
Pulse width for 1PPS	Programmable 1 to 500ms in 1 ms steps
Rise time for 1PPS	<10 ns (faster edge available)
Jitter	GNSS-PPS < 10ns
Connector	SMA
Load Impedance	50 Ohm
Location	rear
<b>Typical Allan Deviation</b>	
1	4E-12
10	6E-12
100	3E-12
1000	2E-12
10000	3E-13
<b>Standard Phase Noise</b>	
1 Hz	-105
10 Hz	-130
100 Hz	-155
1000 Hz	-160
<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

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<b>SNMP (option)</b>	
Remote monitoring & control	Internet
Parameters monitored Locally – present on remote interface for monitoring	Output amplitude, all power supplies, GNSS lock status, number of satellites, Built-In test status,
Transaction/decodable commands	English format
Single monitoring command	Updated every second
Connector	RJ-11
<b>GNSS receiver</b>	
Cold Start Acquisition	GPS, BeiDou, Galileo, and GLONASS reception
	< 30 seconds
<b>Sensitivity</b>	
Tracking	-167 dBm
Reacquisition	-160 dBm
Cold Start	-148 dBm
Hot Start	-157 dBm
<b>Signals Supported</b>	
GPS	L1C/A (1575.42 MHz), L2C (1227.60 MHz)
GLONASS	L1OF (1602 MHz + k*562.5 kHz, k = -7,..., 5, 6), L2OF (1246 MHz + k*437.5 kHz, k = -7,..., 5, 6)
Galileo	E1-B/C (1575.42 MHz), E5b (1207.140 MHz)
BeiDou	B1I (1561.098 MHz), B2I (1207.140 MHz)
<b>Antenna with LNA</b>	
Antenna power	3.5 Vdc, < 20 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	0 to 50C non-condensing
Storage temperature	-40 to 70C
Height	1RU (~1.73)
<b>Width</b>	19 inch
Depth	12 inch
AC input	90 to 250 VAC, 50/60hz, less than 10 watts
<b>Weight</b>	≈5.5lbs



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