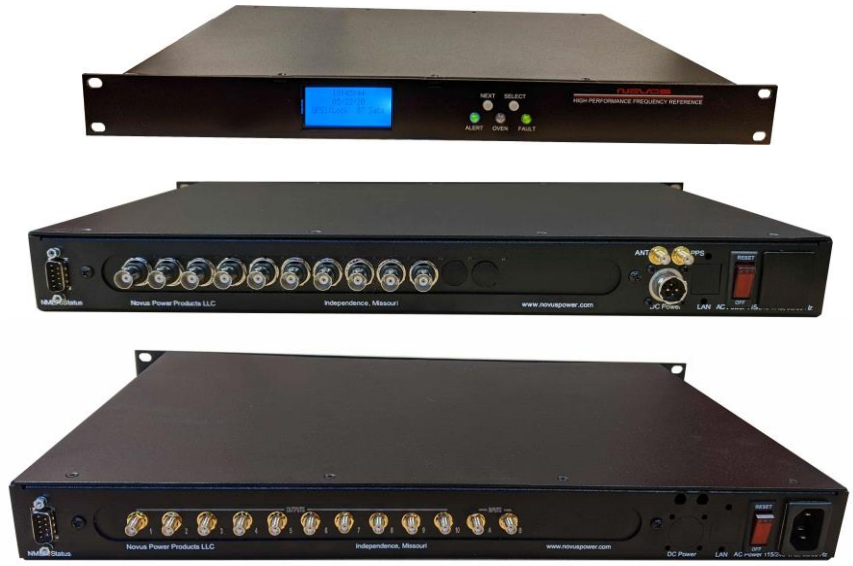
	Company Datasheet #	NR2310D-OG-HS
	Revision #:	B
	Date:	021721

NR2310D-OG

10MHz 10 Channel GNSS Locked Reference with Networking



10 Channel GNSS locked reference featuring a range of performance options. From a low-cost analog locking loop to an entire timing assembly in a thermally isolated case operating at a constant temperature. The unit also features a PPS source with a standard deviation options 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 (HS3, HS4 options). Various phase noise options are available. Dual power source options for AC and DC power.

Networking

SNMP option

Standard Phase Noise

Offset Frequency (Hz)	Typical (dBc / Hz)
10	-120
100	-145
1K	-145
10k	-155

High Stability

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

Technical Specifications

Output	10 MHz 1 Vrms ±0.2, into 50 Ohms, 10 channels, Sine
Harmonic Distortion	< -30 dBc
Yearly Aging	± 50 ppb (unlocked)
Connectors	Available with either BNC or SMA connectors
Accuracy (Allan Deviation)	Analog, HS1,HS2
1 second	0.9E-10
10 second	0.9E-10
100 second	2.0E-11
1000 second	0.8E-12
Accuracy (Allan Deviation)	HS3,HS4
1 second	4E-12
10 second	6E-12
100 second	3E-12
1000 second	2E-12
10000 second	3E-13
PPS	
Amplitude for 1PPS	3.3 Vdc CMOS (5 Vdc option)
Pulse width for 1PPS	Programmable 1 to 500ms in 1 usec steps
Rise time for 1PPS	<5 ns
Accuracy @1 σ	
analog	15ns
HS1	15ns
HS2	15ns
HS3	5ns
HS4	5ns
Pulse to Pulse Jitter @ 1σ	
analog	10ns
HS1	10ns
HS2	GNSS-PPS <5ns SYTH-PPS< 200psec
HS3	GNSS-PPS <5ns SYTH-PPS< 200psec
HS4	GNSS-PPS <5ns SYTH-PPS< 200psec
Connector	SMA
Load Impedance	50 Ohm
Location	rear

Typical Phase Noise	
Offset	
1 Hz	-105 dBc/Hz
10 Hz	-130 dBc/Hz
100 Hz	-150 dBc/Hz
1kHz	-155dBc/Hz
10 kHz	-155 dBc/Hz
GNSS receiver -Analog, HS1,HS2	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
GNSS Receiver HS3,HS4	184 Channels
Systems supported	GPS, BeiDou, Galileo, and GLONASS reception
Cold Start Acquisition	< 30 seconds
Sensitivity	
Tracking	-167 dBm
Reacquisition	-160 dBm
Cold Start	-148 dBm
Hot Start	-157 dBm
Signals Supported	
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)
Antenna with LNA	(Recommended)
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
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
SNMP (option)	
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-45

Environmental and Mechanical

Operating temperature	0 to 50C non-condensing	
Storage temperature	-40 to 70C	
Height	1RU (~1.73)	
Width	19 inch	
Depth	12 inch	
AC input	90 to 250 VAC, 50/60hz, less than 10 watts	
Weight	≈5.5lbs	