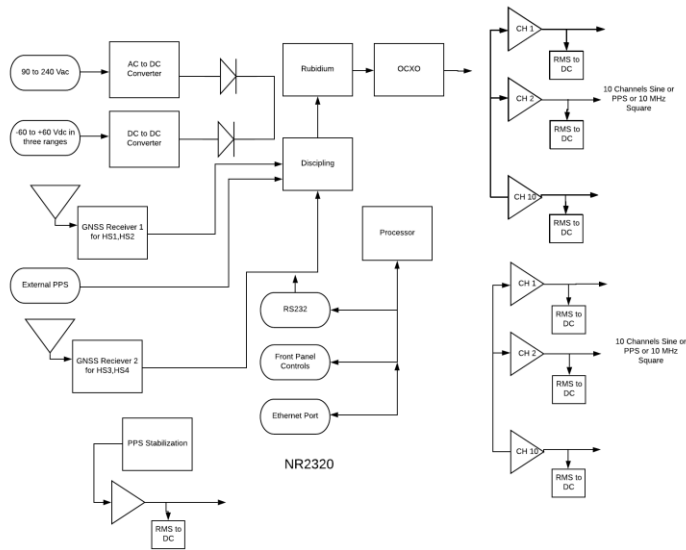


Company Datasheet #	NR2320D
Revision #:	B
Date:	042721

# NR2320D

20 Channel Platform provides system Flexibility



## 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

20 Channel platform provides complete flexibility for the system designer. Two ten channel amplifiers can be 10 MHz Sine, 10 MHz square or PPS. Mix and match to have 10 channels of sine and 10 channels of PPS. Create a 20 channel PPS source. Add a high stability option with GNSS receiver and create the reference you need. Rubidium options provide outstanding holdover stability.

## Technical Specifications

<b>Output</b>	10 MHz 1 Vrms $\pm 0.2$ , into 50 Ohms, 10 channels, Sine
Harmonic Distortion	< -30 dBc
Yearly Aging	$\pm 50$ ppb (unlocked)
Connectors	SMA connectors
<b>Accuracy (Allan Deviation)</b>	Analog, HS1,HS2
1 second	0.9E-10
10 second	0.9E-10
100 second	2.0E-11
1000 second	0.8E-12
<b>Accuracy (Allan Deviation)</b>	HS3,HS4
1 second	4E-12
10 second	6E-12
100 second	3E-12
1000 second	2E-12
10000 second	3E-13
<b>PPS</b>	
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
<b>Accuracy @1 <math>\sigma</math></b>	
analog	15ns
HS1	15ns
HS2	15ns
HS3	5ns
HS4	5ns
<b>Pulse to Pulse Jitter @ 1<math>\sigma</math></b>	
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
<b>PPS Holdover</b>	
OCXO	< 1 ms/day
Rubidium	< 20 usec/day

Company Datasheet #	NR2320D
Revision #:	B
Date:	042721

<b>Connector</b>	SMA
Load Impedance	50 Ohm
Location	rear
<b>Typical Phase Noise</b>	
Offset	
1 Hz	-105 dBc/Hz
10 Hz	-130 dBc/Hz
100 Hz	-150 dBc/Hz
1kHz	-155dBc/Hz
10 kHz	-155 dBc/Hz
<b>GNSS receiver -Analog, HS1,HS2</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)
<b>Sensitivity</b>	
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>GNSS Receiver HS3,HS4</b>	<b>184 Channels</b>
Systems supported	GPS, BeiDou, Galileo, and GLONASS reception
Cold Start Acquisition	< 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)

Company Datasheet #	NR2320D
Revision #:	B
Date:	042721

<b>Antenna with LNA 26 channel Analog, HS1,HS2</b>	(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	
<b>Antenna with LNA</b>	<b>184 channel receiver</b>	
	L-1 Band	L2/ESb/B2i Band
Frequency	1559-1606	1197-1249 MHz
Impedance	50 Ohm	50 Ohm
Gain	Typ 3.5 dBic (Zenith)	Typ 0 to 2 dBic (Zenith)
Axial Rotation	Max 2 dB (Zenith)	Max 2 dB (Zenith)
Polarization	RHCP	RHCP
LNA Gain	Typ 28 +-3 dB	28 +- 3 dB
LNA Noise Figure	Max 2.8 dB	Max 3.2 dB
Output VSWR	Max 2.0	Max 2.0 dB
Cable Insertion Loss	Typ 6.6 dB	Typ 6.6 dB
<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>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-45	



Company Datasheet #	NR2320D
Revision #:	B
Date:	042721

## *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	

This document is copyright © April 27, 2021 Novus Power Products LLC. All rights reserved. This document is provided for information purposes only; contents are subject to change without notice. It is not warranted to be error-free, nor subject to any other warranties or conditions including implied warranties and conditions of merchantability or fitness for a particular purpose.