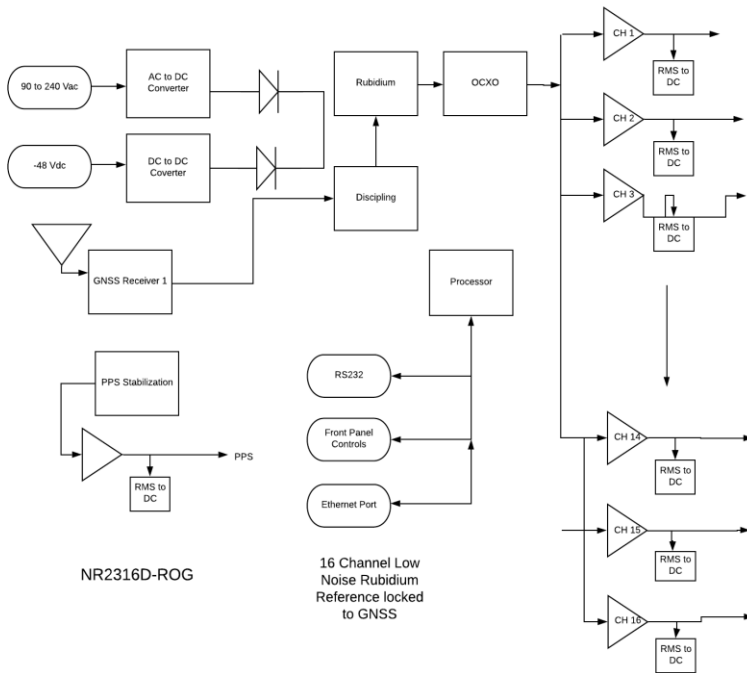


## NR2316D R-O-G

### 10 MHz, 16 Channel, Low Noise Rubidium, GNSS Locked Reference



#### Rubidium

Holdover  $< \pm 5E-11$ /month

#### Crystal

Low phase noise OCXO

#### High Sensitivity GPS

26 channel high-sensitivity, high-accuracy Multi-GNSS receiver. Supports TRAIM, GPS, GLONASS, QZSS, SBAS, Active Anti-Jamming and Advanced Multipath Mitigation Functions.

16 channel reference offers GNSS locked stability. Sixteen channels meet the needs of most applications without requiring a distribution amplifier. Continuous channel monitoring available locally or via RS232/Ethernet/SNMP. Dual power source options for AC and DC power driven systems. Auto-calibration minimizes long-term drift.

## Specifications:

10 MHz Sine	1.0 $\pm$ 0.1 Vrms, 16 channel, 50 Ohm - BNC
Temp Stability	$\pm$ 1ppb over the 0 to 50 C range
<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>Phase noise</b>	
1 Hz	-95 dBc/Hz
10 Hz	-120 dBc/Hz
100 Hz	-145 dBc/Hz
1 kHz	-150 dBc Hz
<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
<b>Rubidium Atomic</b>	
Accuracy at shipment	$\pm$ 1.0E-10
Warm-up time	<15 minutes
Time of lock	<5 min -130 dBm
Time to achieve accuracy	$\pm$ 1E-9<20 minutes
Aging - monthly	$\pm$ 5E-11
Retrace	$\pm$ 1.0E-10 after 1 hour
Stability: Allan Deviation	
1s	<3E-10
10s	<1E-10
100s	<3E-11
SSB Phase noise for 10Mhz	
	Standard

10Hz	<-125dBc
100Hz	<145dBc
1000Hz	<-155dBc
10000Hz	<-155dBc
<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)
Jitter	GNSS-PPS < 10ns
Connector	SMA
Load Impedance	50 Ohm
Location	rear
<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 Required</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
Power Input	90 to 250 VAC, 50/60hz, IEC 320-C14 or 24 VDC (contact factory for options)
Phase Noise	-105 dBc/Hz @ 1 Hz, -135 dBc/Hz @ 10 Hz, -150dBc/Hz @ 100Hz
RS232 Serial Status Port	Status-channel voltages
Ethernet Port	RJ45-option
SNMP	



Company Datasheet #	NR2316D-ROG
Revision #:	C
Date:	050423

## Environmental and Mechanical

Operating Temperature	0 to 50C non-condensing	
Storage Temperature	-40 to 70C	
Height	1RU (~1.73)	
Width	19.0 inch	
Depth	13.0 inch	
AC input	90 to 250 VAC, 50/60Hz, less than 10 watts (DC power options)	
Weight	≈5.5lbs	

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