	DATA SHEET	NR2306-O/G
	REVISION	C
	DATE	050620

NR2306-O-G
GNSS Locked Reference

The signal source is a GPS driven, mixed-signal phase lock loop generating a 10MHz sine output from an intrinsically low jitter voltage-controlled crystal oscillator. The OCXO output drives six independent output channels that are fault protected and monitored continuously.

There is built-in test circuitry throughout the design. All power supplies, oven status, antenna fault/open, over/under temperature are monitored and are used to drive a status relay as well as indicators on the front panel.

Low Noise OCXO

Low phase noise and excellent holdover stability.

High Sensitivity GPS Receiver

The 26 channel GNSS receiver is a high correlator design that can perform very rapid sky searches for satellite signals even under very poor signal conditions.

Low Phase Noise

Typical Offset (Hz)	(dBc / Hz)
10	-115
100	-144
1k	-150
10k	-155

Output	10 MHz,1.0 Vrms ±0.2, into 50 Ohms
Accuracy at shipment	<2E-9
Aging - yearly	<± 50 ppb unlocked
Locked	<1 E-11 @200 sec
Harmonic distortion	< -30 dBc
Alert	20Vdc/Vac, 0.2 Amp relay contacts - relay closed for normal condition, BNC
Frequency	
Warm-up time	<15 minutes
GPS disciplining	GNSS receiver
Time for valid output	<12 minutes
Frequency accuracy	<1E-11
Stability: Allan Deviation	
1s	<1.2E-10
10s	<5E-11
100s	<2E-11
SSB phase noise for 10MHz	
1Hz	<100dBc
10Hz	<-130dBc
100Hz	<145dBc
1000Hz	<-150dBc
10000Hz	<-150dBc
Outputs	6 sine outputs (sma) and 1 PPS (SMA)
Amplitude for 10Mhz frequency output	1 Vrms
Harmonic	<30dBc
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	<10 ns (faster edge available)

Connector	sma
Load impedance	50 Ohm
Location	rear
Remote interface & control	
Protocol	RS232
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, < 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

Main Power	
AC input	110 to 240 Vac
Frequency	47 to 63 Hz
Power	<10 W
DC power option	
Voltage	Options from ±10 to 50 Vdc, configurable as primary or back-up
Warranty	1 year

Environmental and Mechanical

Operating temperature	0 to 50°C non-condensing
Storage temperature	-40 to 70°C
Height	1RU (~1.73 inches)
Width	19.0 inches
Depth	13.0 inches
AC input	90 to 250 Vac, 50/60Hz, less than 10 watts