Company Datasheet #	NR-4400-O-G
Revision #:	A
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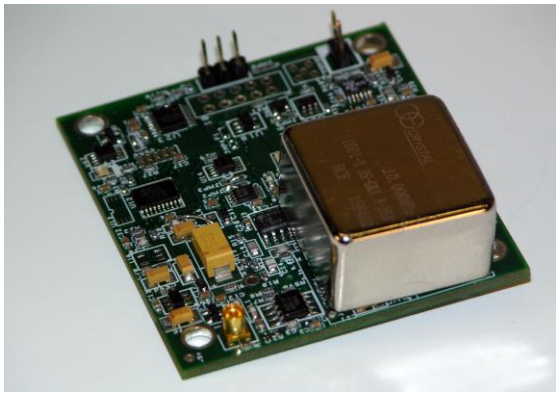
NR4400-O-G

GPS Locked Reference Module with OCXO Holdover

KEY FEATURES



Product Highlights

- Compact easily integrated
- Single 5 VDC supply
- Auto Calibration
- Built-in Test status signal
- GPS lock status signal

High Sensitivity GPS Receiver

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

Low Phase Noise- 10 MHz Sine

Offset Frequency (Hz)	Typical (dBc / Hz)
1	-95
10	-125
100	-150
1k	-152

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 output is a 0.4 Vrms sine. There is extensive built- in test that drives an LED and solid relay contacts for system integration. The unit also features an auto-calibration that compensates for long-term crystal drift provide years of precise performance. There is also a GPS lock status signal, PPS and serial port to provide access to NEMA time stamp data. To simplify use, there is only a single power supply voltage of 5 VDC (1 amp) required. All other required power voltages are developed internally.

Technical specifications

10MHz Sine	0.4 ±0.1 Vrms, 50 ohms- MMCX
Harmonics	Less than -30dB
First Year Frequency Stability	± 50 ppb (unlocked)
Temp Stability	±10 ppb (unlocked)
Daily Aging OCXO	±5 ppb/day (unlocked)
Yearly aging	±50 ppb (without GNSS lock)
Accuracy-Auto cal (24 hrs)	10 MHz-<10ppb
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	<20 ns (faster edge available)
Connector	MMCX
Load Impedance	1000 Ohm
Remote interface & control	
Protocol	RS232 NMEA-0183 (available option 3.3 Vdc CMOS
Connector	10 Pin header
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

Environmental and Mechanical

Operating temperature	0 to 50C non-condensing (extended temperature range available)
Storage temperature	-40 to 85C
Width	2 inch
Depth	2 inch
Height	0.6 in
Weight	~4 oz