

# SONOMA N12 Network Time Server

## GPS-Synchronized, Dual Gigabit Ports

**The Sonoma is a Stratum 1 Time Server that provides an accurate and reliable source of network time inside your firewall.** It can serve accurate time to any system running an NTP or SNTP client. With dual gigabit ports and a fast microprocessor for high-capacity packet throughput (7,500 requests/second), the Sonoma can support hundreds of thousands of network clients with an NTP timestamp accuracy of <10 microseconds. The highly-integrated solid-state design is very reliable, and you can easily manage it via one of the network ports or the RS-232 serial port. A Web Interface (HTTPS) is also provided for status monitoring using your Internet browser.



### Network Security Hardened

Extra care has been taken to "harden" the Sonoma against network attacks. There are only a handful of settings that you need to make and they are typically set only once in the lifetime of the product. Since this is a set-it-and-forget-it box, we have eliminated all extraneous protocols/services in order to minimize exposure to security holes. You can change critical settings via SSH or Telnet and monitor the alarm/status information by using HTTPS, SNMP, SSH or Telnet. Security-conscious users can disable any or all of the risky protocols such as HTTPS, Telnet, Time and Daytime or restrict access to specific hosts.

### FEATURES

- GPS-Synchronized.
- Dual gigabit ports.
- NTP server throughput of 7500 requests per second.
- Optional PTP/IEEE-1588 with hardware timestamping.
- SNMP, SSH, HTTPS and more.
- IPv6 and IPv4 compliant.
- Secure Web Interface to monitor status via your Internet browser.
- Optional dual power supplies.
- Daily and weekly data plots: CPU, NTP and Oscillator Statistics.
- Serves NTP Stratum 1 time for 24 hours if GPS signal is lost. Up to 140 days with Oscillator Upgrade Option.
- Optional Serial Time Output: Sysplex, NMEA, NENA, and more.
- Three-Year Warranty.
- 60-Day Money-Back Guarantee.
- Free technical support and software upgrades for life.

### Best Holdover Performance

The Sonoma will continue to serve Stratum 1 time for a substantial period if the GPS reference signal is ever lost. This is called the holdover period and it is dependent upon the quality of the oscillator and the software control algorithms. The basic Sonoma is provided with a TCXO (drift is 10 milliseconds/day), and it will continue to serve accurate Stratum 1 time for a full 24 hours after signal loss. This is *the best holdover performance for any time server on the market with a TCXO*. For even better holdover performance you may want to consider an oscillator upgrade.

### PTP/IEEE-1588 Grandmaster Clock Option

The Sonoma can be configured as an IEEE-1588-2008 compliant, Precision Time Protocol (PTP) Grandmaster Clock with high capacity and hardware timestamping. The PTP/IEEE-1588 option can be added to one or both of the gigabit ports and delivers the level of performance that is required in high-speed, low-latency systems.

### Measurement Statistics and Charting

Real-time charting of NTP, Oscillator and CPU statistics is available via the Web Interface. Measurements are continuously computed and displayed in real-time with daily and weekly charts. The oscillator statistics are good for verification that the unit was locked at a certain time. NTP statistics show the NTP packet rate and the accuracy of the NTP and System Time relative to UTC. The CPU statistics show the free memory, processor load and operating temperature.

### High Reliability and Free Technical Support for Life

The Sonoma uses EndRun's power efficient, fanless design that achieves an estimated MTBF of over 25 years (16 years with Rubidium). The system is made in America, backed by a 3-year warranty, and provided with free technical support via phone or email for life. No support contracts required.

### Risk-Free Guarantee

If you are not satisfied with the Sonoma for ANY reason, simply return it within 60 days for a full refund less shipping fees. See [www.endruntechnologies.com/guarantee.htm](http://www.endruntechnologies.com/guarantee.htm) for details.

### KEY BENEFITS

- Accurate and secure source of network time inside your firewall.
- Hundreds of thousands of NTP clients can be reliably synchronized within 1/2 - 2 milliseconds of each other.
- Easy to operate and maintain.



Web Interface (HTTPS) for Status & Monitoring

# SONOMA N12 Network Time Server Specifications

## GPS-Synchronized

### GPS RECEIVER:

- L1 Band - 1575.42 MHz.
- 12 Channels, C/A Code.
- 15 dB minimum gain at receiver input.
- Single-satellite mode and dynamic-platform mode.
- Timing Receiver Autonomous Integrity Monitoring (TRAIM).
- TNC connector (female) on rear panel,  $Z_{in} = 50\Omega$ . 5 VDC to antenna.

### ANTENNA:

- TNC connector (female),  $Z_{out} = 50\Omega$ . 5 VDC input.
- Integral +40 dB gain LNA and bandpass filter for out-of-band interference rejection.
- Rugged, all-weather housing capable of operation over  $-40^{\circ}$  to  $+85^{\circ}$  C.
- Mounting via 18" long,  $\frac{3}{4}$ " PVC pipe with clamps.
- 50' low-loss RG-59 downlead cable is standard. Other lengths are optional, up to 1000'.
- Roof-top and window-mount antenna kit included.

### TIME TO LOCK:

- < 5 minutes, typical (TCXO).
- < 10 minutes, typical (OCXO/Rb).

### SYNCHRONIZATION ACCURACY:

- GPS Receiver Accuracy: < 30 nanoseconds RMS to UTC(USNO) when locked\*.
- NTP Timestamp Accuracy: < 10 microseconds @ 7,500 requests/second.
- NTP Client Synchronization Accuracy: Network factors can often limit LAN synchronization accuracy to  $\frac{1}{2}$  - 2 milliseconds, typical.
- \* See *GPS-UTC Timing Specifications* for details.

### HOLDOVER ACCURACY:

- TCXO (standard): 10 millisecs/day. Serves Stratum 1 time for 24 hours after signal loss.
- Premium OCXO: 80 microssecs/day. Serves Stratum 1 time for 35 days after signal loss.
- Rubidium: 5 microssecs/day. Serves Stratum 1 time for 140 days after signal loss.

### SUPPORTED PROTOCOLS:

- SNTP, NTP v2, v3, v4, SHA/MD5 authentication, and broadcast/multicast mode and autokey.
- SSH client/server with "secure copy" utility, SCP.
- SNMP v1, v2c, v3 with Enterprise MIB.
- HTTPS (Web Interface).
- TIME and DAYTIME server.
- TELNET client/server.
- FTP and DHCP clients.
- SYSLOG.
- IPv4/IPv6.
- Optional PTP/IEEE-1588-2008 (v2).

### NTP CLIENT AND PTP SLAVE SOFTWARE:

- NTP client software is freely available. Refer to [www.endruntechnologies.com/ntp-client.htm](http://www.endruntechnologies.com/ntp-client.htm).
- For information about PTP slave software see [www.endruntechnologies.com/ptp-slave.htm](http://www.endruntechnologies.com/ptp-slave.htm).

### OPERATING SYSTEM:

- Linux Kernel 3.2.2.

### NETWORK I/O:

- Two rear-panel RJ-45 jacks.
- Two 10/100/1000 Base-T Ethernet.

### MAINTENANCE CONSOLE:

- RS-232 serial I/O on rear panel DB9M jack for secure, local terminal access.
- Parameters fixed at 19200 baud, 8 data bits, no parity, 1 stop bit.

### SYSTEM STATUS INDICATORS:

- Sync LED: Amber LED pulses to indicate lock status.
- Alarm LED: Red LED indicates a serious fault condition.

### FIRMWARE UPGRADES:

- Software is field-upgradeable and provided free-of-charge.

### POWER:

- 10 watts with TCXO (standard configuration). 11-13 watts with OCXO. 16-23 watts with Rb.
- 90-264 VAC, 47-63 Hz, 1.0A maximum.
- 3-Pin IEC 320 on rear panel, 2-meter cord included.

### SIZE:

- Chassis: 1.75"H x 17"W x 10.75"D (19" rackmount).
- Weight: < 5 pounds.
- Antenna: 1.75"H x 2.25" diameter.

### ENVIRONMENTAL:

- Operating Temperature/Humidity:  $0^{\circ}$  to  $+50^{\circ}$  C / 5% to 90% RH, non-condensing.
- Storage Temperature/Humidity:  $-40^{\circ}$  to  $+85^{\circ}$  C / 5% to 95% RH, non-condensing.

### COMPLIANCE:

- CE, FCC, RoHS, WEEE.

### OPTIONS:

- Premium OCXO, Rubidium, IEEE-1588v2 (PTP), Time Code Output, 1 PPS Output, -48 Vdc Input, Dual Power Supplies, Open-Collector Alarm Output, Sysplex Timer Output, 10 MPPS, Programmable Pulse Output. More options available - call or email.

### PTP/IEEE-1588 (Grandmaster) - (option):

- IEEE-1588-2008 (v2) with hardware timestamping.
- Version 2 Parameters: Default Profile. Multicast. Two-Step Clock.
- Delay Mechanism: E2E or P2P. Delay Interval: 32 seconds. Transport: UDP/IPv4.
- Sync Interval: 1, 2, 4, 8, 16, 32, 64 or 128 packets / 1 second.
- Announce Interval: 1 packet per 1, 2, 4, 8 or 16 seconds.
- PTP Timestamp Resolution: 8 nanoseconds.

### 1 PPS OUTPUT - (option):

- 1 PPS: Positive on-time TTL pulse @  $50\Omega$  or RS-422 levels.
- User-Selectable Width: 20 us, 1 ms, 100 ms, 500 ms.
- Stability: TDEV < 20 ns,  $\tau$  <  $10^5$  seconds.

### DUAL POWER SUPPLIES - (option):

- Dual-Redundant Power Supplies with alarm indication in case of failure.
- AC/AC, AC/DC, or DC/DC is available.

### TIME CODE OUTPUT - (option):

- Signal: Amplitude-Modulated (1 Vrms into  $50\Omega$ , 1 kHz carrier) or DC-Level Shift (3V into  $50\Omega$ ).
- User-Selectable Format: IRIG-B120 (IEEE-1344), IRIG-B122, IRIG-B123, NASA-36, or 2137.

### SERIAL ONCE-PER-SECOND TIME OUTPUT - (option):

- RS-232 output only port - transmits ASCII characters indicating current time.
- 9600 baud, 8 data bits, 1 stop bit, odd parity.
- IBM Sysplex Timer compatibility. Other formats available including NMEA, NENA - call us.



*Sonoma rear panel with optional dual power supplies.  
Antenna input TNC connector on upper left. Two spare BNC connectors on lower left. One RS-232 connector.  
Two 10/100/1000 Base-T Ethernet ports.  
Optional dual power supply connectors on right.*



**ASSISTA INFOCOMM & SECURITY PTE LTD**

Office: 61 Kaki Bukit Avenue 1, # 05-40 Shun Li Industrial Park, Singapore 417943.

Tel: (65) 6744 3178 Fax: (65) 6729 6748

Showroom: 11 Woodlands Close #09-23 Woodlands 11 Singapore 737853.

**Tel: (65) 6337 2148 (Hotline Available 9am - 9pm Singapore Time, 7 days a week)**

Assista InfoComm & Security Pte Ltd places value creation at the core. Assista assists organizations and individuals to improve daily operations and enhance living through the applications and promotions of InfoComm & Security Technologies. The activities include international & domestic sales, marketing, development, installation, service, maintenance, consultation & training of InfoComm equipment, software & technologies related to the Infrastructure, Network & Physical Access Security.

Assista is better known as

- GPS/ CDMA Time & Frequency Solution Specialist
- CCTV Remote Viewing System Specialist
- High Definition Surveillance System Specialist
- Multi-Networked Advanced Door Access Control System Specialist
- Wired & Wireless Alarm Systems Installer
- IP-PBX & Key Telephone System Installer
- Professional Cabling Contractor for CCTV, Telephone & Computer Network Systems
- Security, IT & Telecommunications Systems Integrator
- Product Developer
- Importer & Exporter

**Alternatively, you may e-mail your enquiries to [info@assista.com.sg](mailto:info@assista.com.sg)**