NetClock® Time Server

Model 9383

- **Meets NENA PSAP Master Clock Standard #04-002**
- **Stratum 1 NTP v2, v3, v4 Time Server**
- **Precision GPS time reference (optional IRIG or modem)**
- **Security features: IPSec, SSL, SNMP v3, SSH, SCP, SFTP**
- **Ideal for synchronizing 9-1-1 systems, computer networks, CAD, radio consoles, voice and video recorders, ANI/ALI, display clocks**
- **GPS back-up oscillators (OCXO and Rubidium)**
- **Peering and stratum 2 to other NTP servers**
- **Supports internal audits including: audit trails, time-stamped records, log files, data archiving**
- **Web-based user interface**
- **IPv4/IPv6 dual stack**
- **Supports centralized user authentication (LDAP, RADIUS) and logging (Syslog)**
- **Remote diagnostics, flash upgrades, configuration, and control over secure communication link**
- **Hardened case design for vehicular applications**
- **RoHS compliant/UL approved**
- **5-year limited warranty**

Applications such as emergency communications centers require reliable timing to accurately synchronize networks, systems, and devices and to log events with legally traceable time. Spectracom's NetClock Model 9383 is ideally suited for delivering worldwide, split-second timing to mission critical systems. The 9383 is the latest generation NetClock that has set the standard for the highest reliability systems.

Enhanced security features ensure operational integrity and can be enabled or disabled based on your needs. These features include remote login and file transfer capabilities, providing the utmost security using industry standard interfaces.

The simplicity of installation, ease of management, and reliable operation of the 9383 reduces the cost of network administration. It includes full SNMP capability, support for enterprise directory servers to authenticate users, internal and external logging and monitoring of error messages through Syslog, DHCP for installation convenience, and IPv4/IPv6 dual stack for future network modernization.

Enhanced reliability features include optional oven-stabilized crystal oscillators (OCXO) and Rubidium oscillators to maintain timing if the GPS reference is lost. They also provide stable 10 MHz and 1PPS outputs for communications systems. An optional dial-out modem provides back-up to GPS or functions as the primary reference for disaster recovery. NTP Peering allows for redundancy when multiple NetClock systems are deployed.

Model 9383 can track up to twelve GPS satellites simultaneously, providing highly accurate timing by synchronizing to the satellites' atomic clocks. A variety of time codes are available to meet the requirements of numerous systems. Alarm outputs and programmable timer relays are also provided.

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Performance

Typical Accuracy[1]

1PPS output ±50 nanoseconds of UTC
RS-232/RS-485: Time code ±100 microseconds to ±1 millisecond of UTC, format dependent
IRIG B/E ±20 microseconds to ±200 microseconds of UTC, format dependent
Ethernet NTP: Output jitter within ±50 microseconds relative to UTC typical

Internal Oscillator/10 MHz

- TCXO: $1x10^{-10}$ typical 24-hour average locked to GPS/24-hour holdover (output dependent) unlocked
- OCXO: $1x10^{-11}$ typical 24-hour average locked to GPS, 2×10^{-9} per week typical aging/30-day holdover (output dependent) unlocked
- Rubidium: $1x10^{-12}$ typical 24-hour average locked to GPS, 1×10^{-11} per month typical aging/2-year holdover (output dependent) unlocked

[1] All output specifications are relative to GPS reference, unless noted otherwise.

Outputs Available (x1 unless noted)

Type	Connector
Ethernet 10/100 Base-T	RJ45 (auto sensing)
(2) RS-232 Serial Connector[2]	DB9 female
(2) RS-485 Once-per-Second[2]	3.81mm Terminal Block
IRIG B/E AM/TTL	BNC
1 Pulse Per Second	BNC
10 MHz Frequency Output	BNC
Alarm Outputs (up to 3)	3.81mm Terminal Block
Programmable Timer Output (up to 3)	3.81mm Terminal Block

[2] Serial time code formats: 0, 1, 2 (IBM Sysplex), 3, 4, 7, 8, 90 (GPS)

Network Protocols

- NTP v2, v3, v4: Conforms with or exceeds RFC 1305 and 4330. Supports Unicast, Broadcast, MD5 encryption, Peering, Stratum 2, Autokey
- HTTP: Browser-based configuration and monitoring
- Telnet: Remote configuration
- FTP Server: Access to logs
- SNMP: Supports v1, v2, v2c, and v3 (no auth/auth/priv) with Enterprise MIB
- DHCP/DHCP6: Automatic IP address assignment
- LDAP: Authentication
- RADIUS: Authentication
- Syslog: Logging
- Time (RFC868)
- Daytime (RFC867)
- IPSec: IPv4/IPv6 Transport Mode
- IPv4/IPv6: Dual stack

Security Features

- Enable/block protocols
- Set SNMP community names and network access
- Password protected
- Encryption: DES, 3DES, AES
- Authentication: SHA1, MD5
- SSL Web Based Interface: Web UI uses SSL to allow the use of the secure HTTPS protocol to access configuration and status web pages.
- SSH: utilizes SSL and data compression technologies to provide a secure and efficient means to control, communicate with, and transfer data to or from the master clock remotely.
- SCP: is used to securely transfer files to and from the time server over an SSH session.
- SFTP: is an FTP replacement that operates over an encrypted SSH transport.
- SNMPv3 (no auth/auth/priv): allows remote configuration and management over an encrypted connection.

Inputs Available (x1)

Type	Connector
1PPS Input	BNC female
RS-232 Serial Set-up Interface[3]	DB9 female
GPS Antenna[4]	Coaxial N type
AM IRIG Input	BNC
DCLS IRIG Input	DB9
Power	3 pin screw terminal

[3] Serial set-up interface configures network settings. The port works at 9600 baud, 8N1, and can be accessed with a PC terminal emulator.
[4] Option 06 replaces antenna input with IRIG on BNC connector.

Modem Option (Primary or Back-Up Dial-Out Reference)

Serial set-up interface connects to an external modem that provides primary or back-up (in the event of a loss of GPS signal) connection to Legally Traceable Time® from NIST's ACTS or ITU-R services.

Power

90–240 VAC, 47–63 Hz from supplied external CE/UL/CSA approved power supply with IEC 320 universal power cord connector. North American power cord included. Alternate type line cords or adapters may be obtained locally. Unit operates from 12 VDC nominal (+9.5 – +30 VDC) @ 18 watts. Rubidium, option 04 uses 24 VDC nominal (+18 – +32 VDC) @ 2.5 amps.

Front Panel

- Status Indicators: "Power" and "Sync" multi-color LED
- Selectable 12 or 24 hour display, Hours, Minutes, Seconds, Day of Year

Physical & Environmental

Size/Weight

- Designed for EIA 19" rack mount. 16.75" W x 1.72" H (1U) x 14.00" D actual (425 mm W x 44 mm H x 356 mm D actual)
- Weight: 6.5 lbs. (2.95 kg) with Rubidium option; 6.0 lbs (2.72 kg) without
- Rack mount hardware included (assembly required)

Environmental

	Operating	Storage	MIL-STD-810F Method
Temp	0° to 50°C	–40° to +85°C	501.4, 502.4
Humidity	10%–95% R.H., non-condensing	10%–95% R.H., non-condensing	507.4
Altitude	15,000 ft	40,000 ft	500.4
Shock	15g/0.53 oz, 11 ms, half sine wave	40g/1.76 oz, 11 ms, half sine wave	516.5
Vibration	10~55Hz/ 0.075g, 55~500Hz/ 1.0g	10~55Hz/ 0.15g, 55~500Hz/ 2.0g	514.5

Agency Approvals

RoHS CE UL NENA compliant

GPS Receiver Specifications

Standard

- Receiver Input: L1 (antenna sold separately)
- Tracking: 1 to 12, GPS T-RAIM satellite error management
- Acquisition Time: cold start, 250 seconds (typical)

Warranty

5-Year Limited Warranty

- Rubidium oscillator (Option 04) is warranted for two years from date of shipment.
- Extended warranty is available.

[1]The warranty period may be dependent on country.

Ordering Information

Specify NetClock Time Server, Model 9383, plus:

Option 03: Modem
Option 04: Rubidium Oscillator
Option 05: OCXO Oscillator
Option 06: IRIG-B Input
Option 07: Secure GPS (SAASM) for authorized users only

For additional Spectracom accessories, contact the Sales Department for more information.

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