



NetClock® Time Server

Model 9489



- **Stratum 1 NTP v2, v3, v4 Time Server**
- **Precision GPS time reference**
- **Peering and stratum 2 (up to 15) via NTP servers**
- **High bandwidth NTP performance**
- **Synchronizes security systems, computers, network elements (including PLC's, IED's, telemetry systems), specialty devices, display clocks**
- **Meets regulatory compliance standards: Sarbanes-Oxley, HIPAA, Gramm-Leach-Bliley, OATS**
- **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**
- **Security features: IPSec, SSL, SNMP v3, SSH, SCP, SFTP**
- **Alert notifications via SNMP Traps and directed e-mail alert**
- **5-year limited warranty**

Today's network and computer systems require time-sensitive data for such tasks as logging events, records management, network optimization and troubleshooting, and synchronizing operations. Spectracom's NetClock Model 9489 delivers worldwide, split-second timing with the highest security, reliability, and ease of management. It is designed for applications requiring an affordable state-of-the-art NTP server.

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 9489 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, SNMP Traps and e-mail alert notifications, DHCP for installation convenience, and IPv4/IPv6 dual stack for future network modernization. A new browser-based user interface allows for easy monitoring and configuration changes.

Model 9489 can track up to twelve GPS satellites simultaneously, providing highly accurate timing by synchronizing to the satellites' atomic clocks. A variety of time codes on multiple ports are included to meet the requirements of numerous systems. A 1PPS signal is also available for device synchronization and advanced testing.

Performance**Typical Accuracy (when locked to GPS)**

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

Inputs

- GPS
- NTP

Outputs

- NTP
- 2x RS-485
- 1PPS

Internal Oscillator/10 MHz

- TCXO: 1×10^{-11} over 24 hours to GPS, 1×10^{-8} aging/day, 450 usec 1PPS holdover in 24 hours

Standard Outputs Available (x1 unless noted)

Type	Connector
Ethernet 10/100 Base-T	RJ45 (auto sensing)
(2) RS-485 Once-perSecond ²	3.81mm Terminal Block
1 Pulse Per Second	BNC

²Serial time code formats: 0, 1, 1S, 2 (IBM Sysplex), 3, 4, 7, 8, 9, NMEA: ZDA, RMC, GGA (GPS)

Network Protocols

- NTP v2, v3, v4: Conforms with or exceeds RFC 1305 and 5905. Supports Unicast, Broadcast, MD5 encryption, Peering, Stratum 2, Autokey
- SNTP v3, v4: Conforms with or exceeds RFC 1769, 2030, 4330, and 5905
- HTTP: Browser-based configuration and monitoring
- Telnet: Remote configuration
- FTP Server: Access to logs
- SNMP: Supports v1, 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, AES
- Authentication: SHA, 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.
- Alert notifications via SNMP Traps and e-mail

Front Panel

- Power/Status LEDs
- RS-232 serial setup interface on DB-9

Power

- 100-240 VAC, 50/60 Hz, $\pm 10\%$; power cord included
- Power Draw:
TCXO: 20W maximum

Physical & Environmental**Environmental**

	Operating	Storage	MIL-STD-810F
Temp	0° to 50°C	-40 to +85°C	501.4, 502.4
Humidity	0%-95% RH non-condensing @ 40°C		507.4
Altitude	100-240 VAC to 6,560 ft (2,000 m), 100-120 VAC to 13,123 ft (4,000 m)	45,000 ft (13,700 m)	500.4
Shock	15g/0.53oz, 11ms half sine wave	50g/1.76oz, 11ms half sine wave	516.5
Vibration	10-55Hz/0.07g, 55-500Hz/1.0g	10-55Hz/0.15g, 55-500Hz/2.0g	514.5

Size/Weight

- Designed for EIA 19" rack.
- 16.75" W x 1.72" H (1U) x 14.0" D actual (425 mm W x 44 mm H x 356 mm D actual)
- Weight: 6.0 lbs. (2.72 kg)
- Rack mount hardware included (assembly required)

GPS Receiver Specifications**Standard**

- Frequency: L1 (1575.42 MHz) on coaxial N-type
- Satellite tracking: 1 to 12, GPS T-RAIM satellite error management
- Synchronization time: cold start < 15 minutes (includes almanac download), warm start < 5 minutes (assumes almanac downloaded)
- Antenna system: sold separately

Agency Approvals

CE, UL, cUL, CSA, FCC part 15 class A, ROHS, WEEE

Warranty**5-Year Limited Warranty**

- Extended warranty is available.

Ordering Information

Specify NetClock Time Server, Model 9489

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