NetClock® Time Server
Model 9389

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 9389 delivers worldwide, split-second timing with the highest security, reliability, and ease of management.

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 9389 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. An optional dial-out modem provides backup to GPS or functions as the primary reference for disaster recovery. NTP Peering allows for redundancy when multiple NetClock systems are deployed.

Model 9389 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. Alarm outputs and programmable timer outputs are also provided.
Performance

Typical Accuracy

Within 50 nanoseconds RMS of UTC time (with 3-D fix)
RS-232/RS-485: Time code ±100 microseconds to ±1 millisecond of UTC, format dependent
Ethernet NTP: Output jitter within ±50 microseconds relative to UTC typical

Internal Oscillator

- 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 x 10⁻⁹ per week typical aging/30-day holdover (output dependent) unlocked
- Rubidium: 1x10⁻¹² typical 24-hour average locked to GPS, 1 x 10⁻¹¹ per month typical aging/24-hour holdover (output dependent) unlocked

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

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
- IPSec: IPv4/IPv6 Transport Mode
- IPv4/IPv6: Dual stack
- DHCP/DHCP6: Automatic IP address assignment
- LDAP: Authentication
- RADUIS: Authentication
- Syslog: Logging
- Time (RFC868)
- Daytime (RFC867)

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)

<table>
<thead>
<tr>
<th>Type</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet 10/100 Base-T</td>
<td>RJ45 (auto sensing)</td>
</tr>
<tr>
<td>RS-232 Serial Connector²</td>
<td>DB9 female</td>
</tr>
<tr>
<td>RS-485 Once-per-second³</td>
<td>3.81 mm Terminal Block</td>
</tr>
<tr>
<td>Alarm Outputs (up to 3)</td>
<td>3.81 mm Terminal Block</td>
</tr>
<tr>
<td>Programmable Timer Output (up to 3)</td>
<td>3.81 mm Terminal Block</td>
</tr>
</tbody>
</table>

² Serial time code formats: 0, 1, 2 (IBM Sysplex), 3, 4, 7, 8, 90 (GPS)
³ Serial set-up interface configures network settings. The port works at 9600 baud, 8N1, and can be accessed with a PC terminal emulator.

1 60% nominal (+18 – +32 VDC) @ 2.5 amps.

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: 6.0 lbs (2.72 kg), 6.5 lbs. (2.95 kg) with Rubidium option
- Rack mount hardware included (assembly required)

Environmental

<table>
<thead>
<tr>
<th>Operating</th>
<th>Storage</th>
<th>MIL-STD-810F Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp</td>
<td>–40° to +85°C</td>
<td>501.4, 502.4</td>
</tr>
<tr>
<td>Humidity</td>
<td>10%–95% R.H., non-condensing</td>
<td>507.4</td>
</tr>
<tr>
<td>Altitude</td>
<td>15,000 ft, 40,000 ft</td>
<td>500.4</td>
</tr>
<tr>
<td>Shock</td>
<td>15g/0.53 oz, 11 ms, half sine wave</td>
<td>40g/1.76 oz, 11 ms, half sine wave</td>
</tr>
<tr>
<td>Vibration</td>
<td>10<del>55Hz/0.075g, 55</del>500Hz/1.0g</td>
<td>10<del>55Hz/0.15g, 55</del>500Hz/2.0g</td>
</tr>
</tbody>
</table>

Agency Approvals

RoHS

GPS Receiver Specifications

Standard

- Receiver Input: L1 (antenna sold separately)
- Tracking: 1 to 12, GPS TRAIM 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.

Ordering Information

Specify NetClock Time Server, Model 9389, plus:

- Option 02: Front Panel Display with 2 Additional Serial Ports
- Option 03: Modem
- Option 04: Rubidium Oscillator
- Option 05: OCXO Oscillator
- Option 06: IRIG-B Input
- Option 07: Secure GPS (SAA5M) for authorized users only

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

www.spectracomcorp.com

Specifications subject to change or improvement without notice.
Spectracom is a company of the Orolia Group. © 2011 Spectracom