NetClock® Time Server

Model 9483

- Meets NENA PSAP Master Clock Standard#04-002 and NENA Security Standard #75-001
- Stratum 1 NTP v2, v3, v4 Time Server
- Multi-GNSS synchronization (GPS, Galileo, GLONASS, BeiDou, QZSS)
- Precision time reference with available OCXO or Rubidium internal time-keeping
- Ideal for synchronizing 9-1-1 systems, computer networks, CAD, radio consoles, VOIP, voice and video recorders, ANI/ALI, display clocks
- Supports internal audits including: audit trails, time-stamped records, log files, data archiving
- Ethernet 10/100 Base-T (additional 3-network Gig-E option)
- Optional PTP master
- IPv4/IPv6 dual stack
- Integral AC power (additional DC back-up option for power redundancy)
- RoHS compliant/UL approved
- Alert notifications via SNMP Traps and e-mail alert
- 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. Orolia's NetClock Model 9483 is ideally suited for delivering worldwide, split-second timing to mission critical systems. The 9483 is the latest generation NetClock that has set the standard for the highest reliability of time synchronization.

A Truly Flexible Master Clock
The model 9483 offers a bridge from legacy equipment to network-based systems. In addition to network synchronization, a variety of timecodes (including all the NENA formats) and signals provide synchronization to specific devices. Precise 10 MHz and 1 pulse-per-second signals are standard, and T1/E1 signals are available for syncing telecom systems. The built-in network port, can be supplemented by an option to include 3 additional network ports that support Gigabit Ethernet for synchronizing isolated networks, or for restricting administration to a management network.

Enhanced Reliability
An integral oven-stabilized crystal oscillator (OCXO) is available to provide at least 30-days of accurate synchronization in case of loss of GPS or GNSS. An optional Rubidium oscillator is available for the most-critical applications. The 9483 NetClock can be ordered with integral AC or DC power, or both for redundancy.

Easy Set-up and Administration
The NetClock is simple to install and easy to manage. Front panel controls allow for network configuration and other set-up parameters. A full suite of network protocols includes 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. A new browser-based user interface allows for easy monitoring and configuration changes.

The Most Secure NetClock Ever
Enhanced security features meet and exceed the National Emergency Number Association (NENA) standard for the security of next-generation 9-1-1 systems. All features, interfaces, ports and protocols can be enabled and disabled based on your needs. These features include remote login and file transfer capabilities, providing the utmost security using industry standard interfaces.

Performance

Typical Accuracy (when locked to GPS)

- 1PPS output ±50 nanoseconds of UTC
- RS-232/RS-485: Time code ±100 microseconds to ±1 millisecond of UTC, format dependent
- IRIG ±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: 1x10–11 over 24 hours to GPS, 1x10-8 aging/day, 450 µsec 1PPS holdover in 24 hours
- OCXO: 2x10-12 over 24 hours to GPS, 5x10-10 aging/day, 25 µsec 1PPS holdover in 24 hours, 20 msec 1PPS holdover in 30 days
- Rb: 1x10-12 over 24 hours to GPS, 5x10-11 aging/month, 2 µsec 1PPS holdover in 24 hours, 100 usec 1PPS holdover in 30 days, 10 msec 1PPS holdover in 1 year

Standard Outputs Available (x1 unless noted)

Type	Connector
Ethernet 10/100 Base-T	RJ45 (auto sensing)
(1) RS-232 Serial Connector[2]	DB9 female
(1) RS-485 Once-per-Second[2]	3.81mm Terminal Block
IRIG B/E, IEEE 1344/ C37.118-2005 (AM/TTL)	BNC
1 Pulse Per Second	BNC
10 MHz Frequency Output	BNC
(2) Relay/Alarm Outputs	3.81mm Terminal Block

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

Optional Outputs Available

Type	Connector
(3) 10/100/1000 Base-T	RJ45 (auto sensing)
T1/E1 Balanced (1) 1.544 or 2.048 MHz (2) 1.544 or 2.048 MHz	3.81mm Terminal Block
(1) PTP	SFP

Network Services

Timing

- NTP v2, v3, v4: Conforms with or exceeds RFC 1305 and 5905. Supports Unicast, Broadcast, Multicast, MD5 encryption, Peering, Stratum 2, Autokey
- SNTP v3, v4: Conforms with or exceeds RFC 1769, 2030, 4330, and 5905
- Time (RFC 868)
- Daytime (RFC 867)
- IEEE-1588v2 (PTP) via option card(s)
- NTP over Anycast

Management

- IPv4/IPv6: Dual stack
- DHCPv4/DHCPv6 (AUTOCONF)/SLAAC: Automatic IP address assignment
- Authentication: LDAP, RADIUS, TACACS+
- Syslog: Logging
- SNMP: Supports v1, v2, v2c, and v3 (no auth/ auth/priv) with Enterprise MIB

Communications

- HTTP: Browser-based configuration and monitoring
- Telnet: Remote configuration
- FTP Server: Access to files (logs, etc.)
- SMTP: Email

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

GNSS Receiver

- Connector: Type N, +5V to power active antenna
- Frequency: GPS L1 (1575.42 MHz), Galileo E1 (1575.42 MHz), GLONASS L1 (1602.0 MHz), BeiDou B1 (1561.1 MHz), QZSS L1 (1575.42 MHz)
- Satellite tracking: 1 to 72, 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

Front Panel

- LED segments displays time
- Lockable keypad and configurable LCD display for network set-up
- Power/Status LEDs
- RS-232 serial setup interface on DB-9

Power

- 100-240 VAC, 50/60 Hz, ±10% or 100-120 VAC, 400 Hz, ±10% from IEC60320 connector; power cord included
- Optional 12-17 VDC, -15% to +20% or 21-60 VDC, -15% to +20%, secure locking device
- Optional Auto-failover in the case of AC and DC
- Power Draw: TCXO: 40 W normal (50 W start-up) OCXO: 40 W normal (50 W start-up) Rb: 50 W normal (80 W start-up)

Physical & Environmental

Environmental

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

Size/Weight

- Designed for EIA 19" rack. 16.75" W x 1.72" H (1U) x 14.33" D actual (425 mm W x 44 mm H x 364 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)

Agency Approvals

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

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 9483, plus:

Option 04: Rubidium Oscillator

Option 05: OCXO Oscillator

Option 12: PTP Master

Option 13: T1/E1 outputs

Option 14: DC redundancy (12 VDC)

Option 15: DC redundancy (24-48 VDC)

Option 16: Multi-port Ethernet (adds three 10/100/1000 BaseT)

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