SecureSync® Enterprise

Enterprise-Class Network Time Server

- High bandwidth NTP performance
- Stratum 1 via GPS and other references or Stratum 2
- IEEE -1588 PTPv2 grandmaster option
- Modular hardware supports variety of interfaces and timing signals
- Multiple prioritized reference inputs
- Internal precision timekeeping via TCXO, OCXO or Rb atomic clock
- Secure web-based user interface
- Secure network management: Enable or disable protocols
- IPv4/IPv6 dual stack
- Alert notifications via SNMP traps and email alerts
- CLI/SSH access for automation and scripting
- Industry-leading low phase noise capability
- Multi-GNSS synchronization (GPS, Galileo, GLONASS, BeiDou, QZSS)
- STL option
- BroadShield GPS jamming and spoofing detection option
- Best-in-class 5-year warranty
- Service plans to ensure continuity of operations

SecureSync® combines Orolia's precision master clock technology and secure network-centric approach with a compact modular hardware design in a 1RU chassis to bring you a powerful, scalable and flexible time server. It supports a wide variety of network synchronization and management protocols. The base model comes with a built-in 10/100 base-T Ethernet port for network management and high-performance NTP that can serve more than 7,500 NTP requests per second. It includes all the latest functions of NTPv4. It can be deployed in combination of other stratum-1 NTP server(s) and can be expanded through option modules.

Option Modules Extend Synchronization Capability
A unique capability of SecureSync is the ability to add hardware options at initial deployment or later, as your network grows. One option adds three (3) 10/100/1000 interfaces to deliver NTP to multiple isolated LAN segments at 1GigE. Two other options add PTPv2 functionality to the unit. One option is a configurable master/slave PTP operation over a 1 Gb network interface. The other is PTP grandmaster functionality at 1 GigE. Up to six (6) of either port type can be added. Each PTP port is configured and operates independently to improve PTP performance because its processor is independent of all others in the system.

Along with precision 10MHz and 1PPS outputs, all other physical synchronization signals can be generated as options so you can leverage your networking timing deployment to specific devices. Many of these signals can be used as references for redundancy or for other applications such as syncing across security boundaries via optical fiber.

Reliability and Scalability Supports All Timing Network Architectures
Several features support reliability and redundancy. SecureSync can also be deployed without the expense of a multi-GNSS receiver to operate as a Stratum-2 server. Units within the same stratum can be set as NTP peers. Any other timing source can also be a reference, such as T1/E1, time code, 1PPS, etc. You set the priority from all the available references. An internal oscillator maintains timing accuracy if all references are lost. Choose from TCXO, 2 types of OCXO and Rubidium. Add STL to GPS or GNSS to improve resilience, or use STL alone for indoor applications.

A Network-Centric Approach
SecureSync is a security-hardened network appliance designed to meet rigorous network security standards and best practices. It ensures tamper-proof management and extensive logging. Robust network protocols are used to allow for easy but secure configuration. Features can be enabled or disabled based on your network policies. Installation is aided by DHCP (IPv4), AUTOCONF (IPv6) or SLAAC, and a front-panel keypad and display, and a command-line interface. A modern web browser interface supports configuration and advanced monitoring.

Base units include 10 MHz and 1PPS output signals, network port and choice of power, GPS reference, and internal oscillator options.

Easy-to-Use Interface

Most of the set-up and monitoring of the time server is via web browser interface. It is highly interactive, with real-time status indicators and graphs to monitor and analyze trends. Its responsive design is mobile device friendly. Multi-language support is available.

Specifications

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, 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
- Standard encryption/authentication protocols
- SSL web-based interface: SSL is used to secure HTTPS protocol to access configuration and status web pages.
- SSH: SSL and data compression technologies provide a secure and efficient means to control, communicate with and transfer data to or from the time server remotely.

- SCP: Securely transfers files to and from the time server over an SSH session.
- SFTP: FTP replacement operates over an encrypted SSH transport
- SNMP v3: Remotely configure and manage 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); optional SAASM: GPS L1 & L2 (1227.6 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 download)
- Antenna system: Sold separately

Oscillator

	TCXO	OCXO	HP (LPN) OCXO	Rubidium
Accuracy[1] to UTC (1-sigma locked to GPS)	50 ns	50 ns	25 ns	25 ns
Holdover Accuracy[1] (loss of GPS after 2 weeks locked, constant temp)				
After 4 hours	12 µs	1 µs	0.5 µs	0.2 µs
After 24 hours	450 µs	25 µs	10 µs	1 µs
Recommended max holdover for valid NTP server	1-2 days	30 days	75 days	2 years[2]

[1]Accuracy is measured by comparing the internal 1PPS with the GPS ontime point.
[2]Long holdover periods can risk missing a leap second.

Time and Frequency Outputs
- 1PPS: TTL (5VP-P), into 50 ohm BNC
- 10 MHz: +13 dBm into 50 ohms, BNC (contact factory for performance specs)

Add the features you need through options modules, up to 6 option modules per unit.

Communications

Network Port
- RJ-45, 10/100 Base-T

Serial Set-Up Interface
- RS-232 communications on DB-9 connector

Front Panel
- LED segments displays time
- Lockable keypad and configurable LCD display for network set-up
- Power/Status LEDs

Power

Choice of:
- 100-240 VAC, 50/60 Hz, ±10% or 100-120 V_{AC}, 400 Hz, ±10% from IEC60320 connector; power cord included
- 12-17 V_{DC}, -15% to +20% or 21-60 V_{DC}, -15% to +20%, secure locking device
- 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)

Environmental

	Operating	Storage	MIL-STD-810F
Temperature	-20 to +65°C (+55°C for Rb)	-40 to +85°C	
Humidity	0%-95% RH non-condensing @ 40°C		
Altitude	100-240 V_{AC} up to 6,560 ft (2,000 m), 100-120 V_{AC} up to 13,123 ft (4,000 M) 12-17 V_{DC} and 21-60 V_{DC} up to 13,123 ft (4,000 m)	45,000 ft (13,700 m)	
Shock	15g,11ms half sine wave	50g, 11ms half sine wave[1]	516.5
Vibration	10-55 Hz/0.07g²/Hz 55-500 Hz/1.0g²/Hz	10-55 Hz/0.15g²/Hz 55-500 Hz/2.0g²/Hz	514.5

Agency Approvals

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

Physical

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)

Warranty

Five-Year Limited Warranty[1]
- Oscillator for rubidium option is warranted for two years
- Extended warranty is available

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

Ordering Information

Base Units

1200-XYZ
Select power, internal oscillator and GNSS reference options:

X=Power	Y=Internal Oscillator	Z=Primary Reference
0=AC 1=AC/DC (12 vdc) 2=AC/DC (24/48 vdc) 3=DC (12 vdc) 4=DC (24/48 vdc)	0=TCXO 1=OCXO 2=Low phase noise OCXO 3=Rubidium 5=Low phase noise Rb	1=No GNSS 3=Multi-GNSS 5=SAASM GPS (MRU)[1] 7=SAASM GPS (GB-GRAM)[1]

Example
A SecureSync base unit with AC power, OCXO internal oscillator, and GPS as the primary reference is Model Number 1200-013. It comes with a 10/100 Base-T network port and 1 each 1PPS and 10 MHz output signals. Order option modules for additional input/output functions.

Optional Upgrades

SS-OPT-SKY: Adds Skylight™ Indoor GPS Timing System
SS-OPT-BSH: GPS Jamming and Spoofing Detection

Option Modules

Up to 6 option modules can be accommodated per unit. See Option Module Card datasheet for details.