SyncServer S300
High Performance, Enhanced Security GPS Network Time Server

Overview

Setting new standards for security, reliability, redundancy and versatility in network time servers, the SyncServer® S300 GPS Network Time Server is the solution for synchronizing the time on servers and workstations for large or expanding IT enterprises. Accurately synchronized clocks are critical for network log file accuracy, security, billing systems, electronic transactions, database integrity, VoIP, and many other essential applications.

The high performance S300 continues the SyncServer legacy of being the easiest to set up and maintain network time servers in the world. The front panel is designed to quickly bring the server online with a few front panel keystrokes or DHCP. To fully configure the unit, use the very intuitive web interface or the step-by-step web based wizards for the most common operations.

Once online, the S300 provides very reliable and secure network synchronization technology by combining multi-port network interfaces with multiple time reference technology and enhanced security protocols. Support of the essential security and network protocols provide for easy management and seamless integration into your existing and future network.

The four S300 Ethernet ports translate into high availability and throughout to support hundreds of thousands of network clients while maintaining microsecond caliber NTP timestamp accuracy. These four completely independent ports provide the flexibility needed to easily adapt to different and changing network topologies and security requirements.

The Stratum 1 level S300 derives its extremely accurate time directly from the atomic clocks aboard the GPS satellite system. For redundancy and time assurance, the S300 also includes an internal modem to connect directly to legal time provided by national time authorities. Reliability is further enhanced via Stratum 2 operation by retrieving time from other user-designated time servers. An optional AM radio will synchronize to national time broadcasts, which can be an alternative to GPS when GPS is not viable option.

To further protect against the loss of accurate time, the S300 can be upgraded to an internal Rubidium atomic oscillator that keeps the S300 accurate to microseconds per day. IEEE 1588 / PTP Grandmaster functionality is also an available upgrade.

The SyncServer S300 is your answer to bringing perfect timing to your network — securely, reliably and easily — and for many years to come.

Front

Back

Key Features

- Ultra high-bandwidth NTP time server
- Stratum 1 operation via GPS satellites
- Four independent Ethernet ports
- Internal dial-up modem for time backup
- Reference Redundancy
- Stratum 2 operation via NTP servers
- TACACS+, RADIUS, NTPv4 autokey, MD5 authentication
- Secure web-based management
- SSH, SSL, SCP, SNMP, custom MIB, HTTPS, Telnet, and more
- High-resolution display
- Full numeric keypad
- IPv6 and IPv4 compatible
- Nanosecond time accuracy to UTC
- Dedicated sysplex timer output
- Alarm relays
- Single satellite timing
- Rubidium and OCXO osscillator upgrades
- Upgrade to radio broadcast time sync
- IEEE 1588 / PTP Grandmaster option

Key Benefits

- Synchronize thousands of client, server and workstation clocks
- Very reliable and secure source of time for your network
- Multiple NTP ports for easy network configuration and adaptation
- Extremely accurate time source for network synchronization
- Enhanced network and security features
- Improve network log file accuracy to speed network fault diagnosis and forensics
- Access multiple time sources for reliable and secure time
- Very easy to install and maintain
- Intuitive web interface for easy control and maintenance

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Specifications

Network Protocols

NTP (v2 - RFC1119, v3 - RFC1305, v4 -RFC5905)
NTP Unicast, Broadcast, Multicast, Autokey
SNTP Simple Network Time Protocol (RFC4330)
TIME (RFC868)
DAYTIME (RFC867)
HTTP/SSL/HTTPS (RFC2616)
SSH/SCP (Internet Draft)
Syslog 1 to 8 servers
SNMP v1, v2c, v3 (RFC3584)
Custom MIB
DHCP (RFC2131)
Telnet (RFC854)
MD5 Authentication (RFC1321)
TACACS+
RADIUS (RFC2865)
SMTP Forwarding
IPv4, IPv6
Key management protocols can be individually disabled.
LAN 1: Management & Time protocols; LAN 2, 3 & GbE: Time protocols only.

Server Performance

- 7000 NTP requests per second while maintaining accuracy associated with reference time source. The accuracy is inclusive of all NTP packet delays in and out of the SyncServer as measured at the network interface. Client synchronization accuracy to server on a LAN is 0.5 - 2 milliseconds (typical). The SyncServer easily supports many hundreds of thousands of NTP clients. NTP request handling capacity remains the same regardless of Stratum level.
- Stratum 1 via GPS: Overall time stamp accuracy of 7 microseconds to UTC with a variation of less than 42 microseconds typical.
- Stratum 1 via Dial-up modem: <50 milliseconds to UTC (<20 ms typical).
- Stratum 2: Peering can be used as the primary mode of operation or as a back up mode in case the primary reference signals are lost. Time stamp accuracy depends on NTP peer server(s).
- Holdover Accuracy
  TCXO (standard): 18 milliseconds/day
  OCXO (optional): 1 milliseconds/day
  Rubidium (optional): 6 microseconds/day

GPS Receiver/Antenna

- 12 channel parallel receiver
- Minimum number of satellites for time: 1 intermittently
- GPS time traceable to UTC (USNO)
- Accuracy: <50 ns RMS, 150 ns peak to peak to UTC, ≥4 satellites tracked.
- Maximum Belden 9104 cable length: 150' (45 m). For longer cable runs see options

Internal Analog Modem

- Telecom approved in more than 50 countries
- Time Encoding: ACTS, JJY, and ITU-R TF583.4

Mechanical/Environmental

- Size: 1.75" x 17" x 11.25"
- (4.5 cm x 43.2 cm x 28.6 cm) 1U rack mount
- Power: 100-240 VAC, 50-60 Hz, 25 watts (45 watts with Rb osc.)
- Operating temperature: 0°C to +50°C

- Storage temperature: -10°C to +70°C
- Humidity: To 95%, noncondensing
- Certifications: FCC, CE (RoHS), UL, PSE, China RoHS
- Server weight: 9 lbs (4.1 kgs), Shipping package: 16 lbs (7.3 kgs)

Front Panel

- Display: Sharp, high-resolution 32x256 dot-matrix vacuum-fluorescent. 1, 2 or 4 line.
- Keypad: 0-9 numeric, up, down, left, right, ENTER, CLR, TIME, STATUS, MENU.
- LEDs (tri-color green/red/orange)
  Sync: Time reference status
  Network: Network connection status
  NTP: NTP activity
  Alarm: Fault condition
- Serial: DB9-F 9600, N, 8, 1
- USB: (2x) ports for back up, restore, and upgrade operations via the front panel.

Rear Panel

- Network (4x): 1x RJ-45 10Base-T/100Base-TX/1000Base-T Gigabit Ethernet
  3x RJ-45 10Base-T/100Base-TX Ethernet
  Speed/Duplex: Auto, 10/full/half, 100/full/half
- Sysplex: DB9-M RS-232
- GPS: BNC L1, 1575 MHz
- Modem: RJ-11 analog phone jack
- Radio: BNC, Optional antenna required for operation.
- Power: IEC 60320 C14 connector & power switch.
- Relays: 2x, SPDT (Form C).

Client Software

See Options for comprehensive software solutions.

Product Includes

S300 Network Time Server, L1 GPS antenna, 50' (15 m) Belden 9104 coaxial cable, 1 ft. antenna mounting mast (30 cm) with two clamps, category 5 patch cable, DB9-M to DB9-F RS-232 extension cable, manual, Enterprise MIB software, power cord, and rack mount ear kit. Two-year warranty [Part 1520R-S300].

Options

- Rubidium or OCXO oscillator upgrade for extended holdover (OCXO on select models only) [Entire Server sold as Part 1520R-S300-RB or 1520R-S300-OCXO]
- AM Radio/Antenna (40 or 60 kHz) for WWVB (USA) or JJY (Japan)
- ±40-60 Vdc power supply [Entire Server sold as Part 1520R-S300-DC]
- Window mounted GPS antenna [Part 500-140-619]
- GPS antenna in-line amplifier for cable runs to 300' (90 m) [Part 150-200]
- GPS antenna down/up converter for cable runs to 1500' (457 m)
- Lightning arrestor [Part 150-709 or 150-710]
- Comprehensive time client, server & management software for easy distribution, management and monitoring of time across the network.
- IEEE 1588 / PTP Grandmaster option [Part 090-01074-000]