



Thunderbolt NTP TS100

NTP Network Time Server for high reliability applications



Thunderbolt NTP TS100 Time Server

The Trimble Thunderbolt® NTP TS100 Time Server is designed for demanding applications that require high accuracy NTP time stamping. The TS100 supports synchronization of thousands of workstations, routers, switches and other network elements for logging and security forensics. VOIP IPBX systems also require very accurate NTP timestamps to ensure CDR events are correctly registered and reported.

The Thunderbolt NTP TS100 supports multiple constellations GNSS, which enables tracking of GPS, GLONASS, and Beidou satellites enhancing redundancy and satellite availability.

The Thunderbolt NTP TS100 Time Server is certified NEBS standards for reliability.

Industrial applications

Automation systems and industrial environments that use SCADA or other network monitoring, measurement and control systems require high precision NTP reference to ensure reliable and accurate operations.

The NTP TS100 is optimized to deliver extremely stable and accurate time of day (TOD) synchronization for a variety of time sensitive applications such as

datacenters, SCADA systems and PMU synchronization.

Ideal for demanding environments

The Thunderbolt NTP TS100 leverages Trimble's decades of experience in GNSS systems with millions of timing devices integrated into telecommunications, digital broadcasting, computer networks and other industrial applications.

The NTP TS100 Time Server offers extended operating temperature ranges to ensure suitability for use in demanding environments.

The NTP TS100 supports a large number of clients making it suitable for medium and large scale deployment. The low cost per client of the TS100 helps reduce the total cost of deployment while maintaining superior reliability

Integration and Installation

The Trimble Thunderbolt NTP TS 100 Clock offers AC and DC power options for easy deployment in all types of network environments.

Matching the NTP TS 100 with Trimble rugged antennas such as the Trimble Bullet™ 360 provides reliable reference acquisition in challenging RF signal environments.

Bullet 360 rugged antennas provide multi-GNSS capabilities so that critical applications can obtain high precision timing signals with the best reliability in the industry.

Key Features

- NTP v4 Time Server
- Supports 2.5K NTP tps
- Multi-Constellation (*GPS, GLONASS, Beidou and Galileo-ready*)
- 15ns time accuracy (GPS locked)
- Holdover of $\pm 1.5\mu s$ over 4hours (*constant temperature and when locked to GPS for 7 days*)
- IPv4 and IPv6 Support
- NEBS Compliant

Benefits

- Extended environmental capabilities allow for installation in difficult industrial environments where other NTP servers cannot be deployed
- Dual power input provides power redundancy
- Superior holdover performance via Trimble proprietary algorithm gives extra time error budget for network design and dimensioning.
- Low cost helps reduce total cost of NTP deployment
- Small form factor allows for easy installation
- Side by side capabilities facilitate redundancy implementation



GENERAL SPECIFICATIONS

Inputs.....GNSS (GPS, GLONASS, Beidou & Galileo¹)
Outputs.....Ethernet: 1x GigE RJ45
1x SFP
Protocols.....NTP
GNSS AntennaSMA

Protocols:
NTP, IPv4, IPv6, Telnet, SFTP, SSH
Network Management.....SNMPv2
HTTP (information viewing only)

User Interfaces:
CLI.....Monitoring and Management
Web UI.....Monitoring Only

¹ Hardware ready: a firmware update is required to enable the Galileo constellation

PERFORMANCE

Time of day accuracy.....15ns (1-sigma) from UTC
Frequency accuracy..... 1.16×10^{-12} (one day ave.)
Holdover..... $< 1 \times 10^{-10}$ /24hrs

Time accuracy
Tracking to PRC.....<15ns (locked)
Holdover..... $< \pm 1.5 \mu\text{s}$ /4hrs (7 days locked)

NTPv4 Stratum-1 server configuration.....2500 tps
Surveyed accuracy.....<3m Horizontal, <5m Vertical

PHYSICAL CHARACTERISTICS

Dimensions in cm (L x W x H):.....20.8 x 20 x 4.4
(19" half-rack x 1U)
Weight.....< 3Kg (6 lb)

REGULATORY & STANDARDS

Operating Conditions
Temperature.....-40°C to +85°C
Humidity.....5%-95% RH non-condensing (+60°C)

Storage Temperature.....-55°C to +105°C

Safety & Environmental:
UL / CSA 60950-1
EN: 60950-1, 300019
CE, CISPR22 class A
GR-63; Level 3
NEBS GR-1089 section 2 and 3
ETSI (EN55022/EN55024) EN 300019, Class T3.2

Electrical.....EMC, ESD Immunity & susceptibility
FCC Part 15 Class A
EN.....300 386, 55022 class A, 55024, 61000-6-2/4
IEEE.....1613-1
Telcordia.....GR-1089

Synchronization
IETF.....NTPv4
(v3 compatible)

Environmental
RoHS-II & WEEE Compliant

Visit www.trimble.com/timing for part numbers and information about where to buy.

Parts of the product are patent protected.

Trimble has relied on representations made by its suppliers in certifying this product as RoHS-II compliant.

Specifications are subject to change without notice.

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