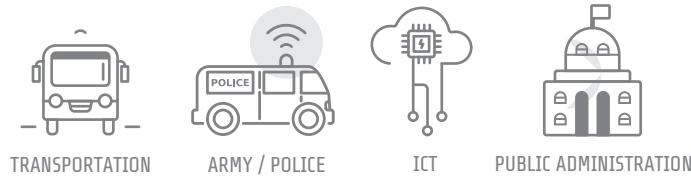




Security • Synchronization • Reliability • Performance



### Synchronization

- PTP IEEE1588 Grandmaster
- NTP STRATUM-1 Time Server
- GPS Galileo Glonass Beidou time

### Security

- SAT Time-firewall w/ ANT auto-OFF
- GNSS anti-jamming/spoofing
- GPS L1 jammed signal mitigation\*\*
- GNSS simulation for RF-denied env.\*\*
- GNSS city-canyon multipath mitigation

### Reliability

- STARLINK / IRIDIUM LEO backup\*\*
- DCF77 / 225kHz Solec K. backup\*\*
- 5071A HROG-10 full UTC backup\*
- 10x remote NTP servers backup
- HA CARP redundancy

### Performance

- Internal stability < 2 ns
- GNSS accuracy < 5 ns
- PTP accuracy < 100  $\mu$ s

### Consider also other Elproma products:

- NTS-4000 for GNSS-less medium OCXO holdover
- NTS-5000 for GNSS less long Rubidium holdover

both offer much better performance & security.

### Why NTS-3000 is is a wise choise?

- Low cost - high performance
- Thousands of sold network sync appliances worldwide
- Better simple own time server than sorry when get unsynchronized

## NTS-3000

### NTP/PTP IEEE1588 Time Server

The NTS-3000 is a low cost PTP IEE1588:2008 GRANDMASTER clock and NTP/SNTP Time Server.

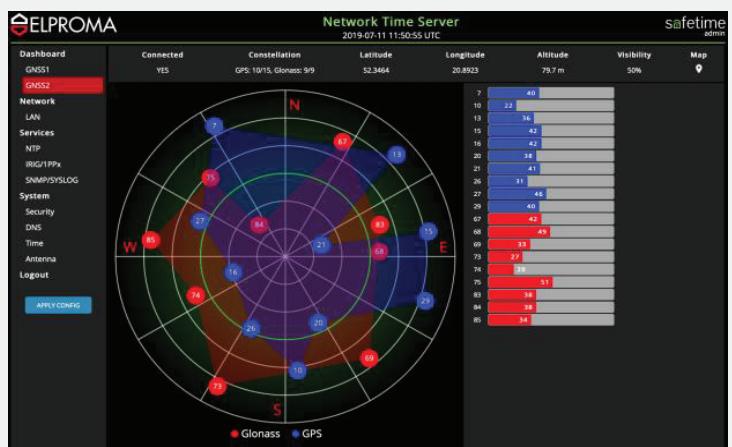
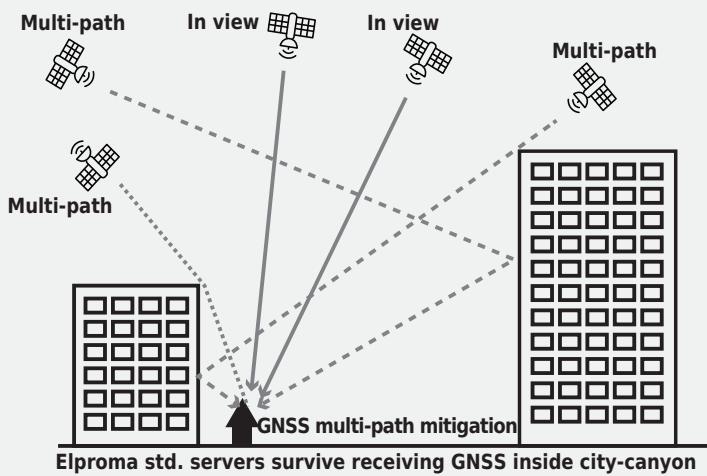
It offers a technology suite to meet the synchronization needs of evolving small and medium IT/OT, including ICT enterprises, public administration, transportation, water distribution, smart metering. The NTS-3000 server provides robust synchronization services ensuring good accuracy and security.

When used with Elproma's external LEVEL-2\*\* GPS anti-jamming filter and LEVEL-3\*\* GNSS simulator, the NTS-3000 ensures resilient timing, even operating in GNSS-denied havy jammed RF environments. Product supports HA CARP networking redundancy.

Made in EU



ISO 9001  
QUALITY  
ASSURANCE



Built-in SAT signal monitoring. GPS jamming alarms call MIB-2 traps

## Ref. Time

- std. 1x GNSS receiver • opt. 2<sup>nd</sup> GNSS receiver
  - std. supporting GPS, Galileo, Glonass, Beidou
- opt. opt. supporting DCF77 or 225 kHz Solec Kuj.
- std. 1x 5071A\* / HROG-10\* direct synchronization  
10x backup NTP serves (incl. eTimePL\*\* system)

## Inputs

- std. 2x GNSS physical or simulated signal LEVEL-3
- std. 2x ToD time-scale ref. (clock + calendar)
  - opt. direct 5071A\*/HROG-10\* for UTC/TAI
  - opt. backup STARLINK / IRIDIUM modem\*\*
- std. 1x1PPS frequency ref.

ANT1/ANT2 IO support both physical GNSS and simulated LEVEL-3 signals

## Outputs

- std. 2x GNSS simulation signal LEVEL-3 compatible
- std. 2x ToD ToD (Time of a Day code multiple std.)

ANT1/ANT2 support GNSS NMEA183 signal simulation LEVEL-3 compatible

## LAN

- std. (main) 2x 100/10 Mbps x86 sw time-stamps

## PTP & NTP

- **IEEE1588:2008** Grandmaster with sw-stamping

- **Stratum 1 NTP Time Server** (all NTP versions)  
Stratum 2 NTP/SNTP Client synced to Stratum 1  
Performance: up. to 10 000 clients/s per port LAN  
up to 100,000 NTP clients/port LAN  
1024s polling up to 10 mln.NTP clients/port LAN

## Accuracy , Stability , Holdover

< 2 ns Server internal  
< 5 ns GNSS receiver

## Protocols

- IEEE 1588-2008 (PTP Precision Time Protocol)
- NTPv4, NTPv3 (NTP Network Time Protocol)
- Cs5071A\*/HROG-10\* (direct sync ToD+PPS to UTC/TAI)
- IPv4 / IPv6\*\* • DHCP • SSH • SFTP • TELNET • SYSLOG
- VLAN (1x PTP-slave, 9x PTP-master, 10x NTP) • HA CARP
- MIB-2 SNMPv3 supporting UNSYNC and JAM-attack to OSS soft.
- Zabbix (supports default management) • OSS via MIB 2

## Environmental

- Redundant\*\* power: 110-230VAC (1A), 120-370 VDC (1A)
- Max. current consumption: 1A(AC) / 2A(DC)
- Max. power consumption: 60W (typical), 80W (max)
- Operating temperature -5°C to +60°C
- Storage temperature: -55°C to +80°C
- Humidity: 5% to 95% (non condensing) • MTBF 391000h
- std. (1U): 44,4 (H)×484 (W)×300 (D) mm • Weight: 4.2 kg

## Security & Reliability

- NTS-3000 has built-in advanced GNSS satellite traceability.
- The SNMP supports MIB 2 compatible to any OSS software. Our MIB 2 file defines one of the world's most significant event traps database, that incl. GNSS jamming & spoofing.
- Built-in crypto std. RSA, MD5, DES, SSL, SHA-1, SHA-2.
- When equipped with LEVEL2\*\* filter or LEVEL3\*\* simulator, NTS-3000 ensures resilient UTC time even in GNSS-denied, heavily jammed RF environment. Server can also receive a Time Sync Attack alarms from wide area National Cyber Protection System (e.g. ARGOS\*\*). When connected to ground National Time Dissemination System (eCzasPL\*\*), the NTS-3000 time server does not need GPS /GNSS at all. In case of unexpected GNSS receiver security vulnerability the other vendor replaceable GNSS modules are available.

\* extra feature not requiring hardware update      \*\* requiring additional hardware

NTS-3000 Series Back panel

