

NTS-4000 Series

NTP/PTP IEEE1588 Modular Time Server



November 2026 (v5) | Made in EU | ISO 9001

The NTS-4000 Series (NTS-4203/5 model) is a professional GRANDMASTER clock with advanced cyber-security capabilities. Server is created from scratch in 2024, keeping 100% backward compatibility to original 2008 appliance. It basis on a state-of-the-art FPGA chipset that offers a powerful free space margin for the future.

It offers a technology suite to meet the synchronization needs of evolving Industry 4.0 IT/OT networks: NIS2 public administration, LTE/5G telecom, energy smart grid, data centers, financial market, enterprises. The server provides robust synchronization services ensuring accuracy, stability, security and reliability.

Ref. Time

- 1x GNSS receiver (std.) 150m cable
- 2nd GNSS receiver (opt.)
- GPS, Galileo, Glonass, Beidou
- DCF77 / 225 kHz Solec Kuj. (opt.)
- 1x 5071A* / HROG-10* direct sync (opt.)
- 20x backup NTP servers incl. eTimePL** (opt.)

Inputs

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

Outputs

- 2x GNSS simulation signal LEVEL-3 compatible
- 2x ToD (Time of a Day code multiple std.)
- 1x 1PPS frequency ref.
- 1x 10MHz frequency ref. or 2.048 MHz*
- 1x IRIG-B AM
- 2x IRIG-B TTL 5V, 2x IRIG-B ST FO IRIG-B DCLS (opt.)
- 4x IRIG-B RS422 DCLS, 1x MOSFET PPS/PPM/PPH (opt.)
- 4x ALARM RELAYS (opt.)

LAN

- (main) 2x 100/10 Mbps sw time-stamps NTS-40xx
- (ext) 8x 1 GbE (SFP/RJ45) sw time-stamps
- (ext) 16x 1 GbE (SFP/RJ45) sw time-stamps
- (ext) 24x 1 GbE (SFP/RJ45) sw time-stamps
- (main) 2x 1 GbE (SFP) FPGA hw time-stamps NTS-42xx
- 4x 1 GbE (SFP) FPGA hw time-stamps
- opt. 1x 10 Gb/s (SFP+) FPGA hw time-stamps NTS-42xx
- (ext) 4x 1 GbE (SFP) FPGA hw time-stamps
- (config) 1x 100/10 Mbps for management

Choose base std. platform between new FPGA and x86 architecture.
The FPGA hw supports x10,000 better PTP sync accuracy than x86.
The old 8/16 GbE ports x86 std. extensions are requiring 2U size.

Accuracy, Stability, Holdover

- < 2 ns Server internal
- < 5 ns GNSS receiver
- < 20 ns PTP-2-PTP hw-stamps
- < 5x10E-11 /sec HQ OCXO
- < 100 ns IRIG DCLS FO
- < 2 µs IRIG-B AM/TTL
- < 100 ns PPS, PPM, PPH

Protocols

- IEEE 1588-2008 (PTP Precision Time Protocol)
- NTPv4, NTPv3 (NTP Network Time Protocol)
- IRIG, AFNAR*, STANAG4430*, NASA36*
- SyncE* (Synchronous Ethernet)
- 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
- Zabbix (supports default management) • OSS via MIB 2

Environmental

- Redundant power: 110-230VAC or 120-370VDC or 20-70VDC
- 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: 391 000 h
- (1U): 44.4 (H) × 484 (W) × 300 (D) mm | Weight: 4.2 kg
- (2U): 88.8 (H) × 484 (W) × 300 (D) mm | Weight: 6.1 kg
- (3U): 133.2 (H) × 484 (W) × 300 (D) mm | Weight: 7.9 kg

Security & Reliability

- NTS-4000 has built-in advanced GNSS satellite traceability.
- SNMP supports MIB 2 compatible to any OSS software.
- MIB 2 defines one of the world's most significant event trap
- databases, 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-4000 ensures resilient UTC time even in GNSS-denied,

*The old 24 GbE ports are custom built requiring 3U size chassis.
The new 2/4 GbE port based on FPGA supports 1pcs. 4x1GbE ext.*

PTP & NTP

- IEEE1588:2008 Grandmaster, submaster (slave)
- one-step, peer-to-peer, transport UDP, RAW layer2
- Profiles: telecom G.8275.1, G.8275.2, G.8265.1
- default, power IEEE C37.238*, pwr. utility*
- AVB 802.1AS, automotive, enterprise, HA*
- Performance: up to 128 msg/s (per port LAN)
- up to 1000 clients (per port LAN)
- 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

- heavily jammed RF environments.
- Server can receive Time Sync Attack alarms from ARGOS**.
- When connected to eCzasPL**, NTS-4000 does not need GNSS.

Product Advantages over NTS-3000

- Single HQ OCXO holdover for GPS-less operation
- More I/O sync incl. 1PPS-out, 10MHz, IRIG-B AM
- Higher PTP accuracy thanks to hw stamping
- NTS is std. 1U, but can be 2U for future upgrades

Why NTS-4000 is a wise choice?

- OCP (Facebook) choice or GNSS-rcv for Data Centers.
- African biggest single Smart Grid energy deployment (50pcs).
- European biggest single Stock Exchange deployment (10pcs).
- They trusted us: PUB-administration, NMI-metrology, Enterprises.

* extra feature not requiring hardware update ** requiring additional hardware e-mail: office@elpromaelectronics.com www.elpromaelectronics.com