MY2018

NTS-5000 Rb+ocxo

NTP/PTP IEEE1588 Modular Time Server

- TIME DOMAIN UTC (GNSS)
- GRANDMASTER STRATUM-1

- 10x GE LAN* (SFP, RJ45)
- SECURITY 100% isolated LANs
- TOP STABILITY IPstack/LAN
- MULTI I/O PPS/PPM/PPH/IRIG
- NTP rfc5905-5909 (rfc1305)
- PTP IEEE1588 hardware FPGA
- 2x ANT separated inputs
- RS232/485 & USB interface
- IRIG-B AM & IRIG-B DCLS
- SNMP v3,v2 MIB2 R ADIUS
- MD5 RSA DSA SSL security
- CRYPTO authentication
- REMOTE configuration
  SSH HTTPS HTTP TELNET
- MiFID II ESMA 100% compliant
- REDUNDANT PWR-supply*
- STD: RUBIDIUM holdover
  LITE: OCXO holdover

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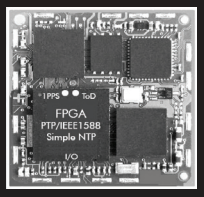
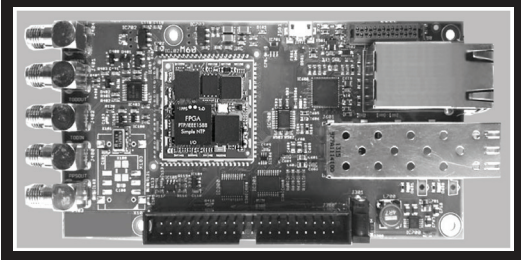
* extra feature requiring additional hardware and/or software firmware upgrade

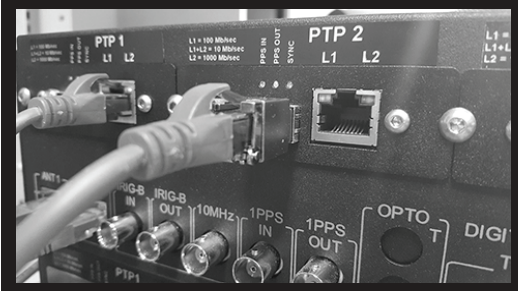
Miniature module (2x2 cm) A low-level component located on each of 1-4 PTP/IEEE1588 Grandmasters modules It includes FPGA PTP/1588 stacks w/ hardware timestamping ofering accuracy of nanoseconds



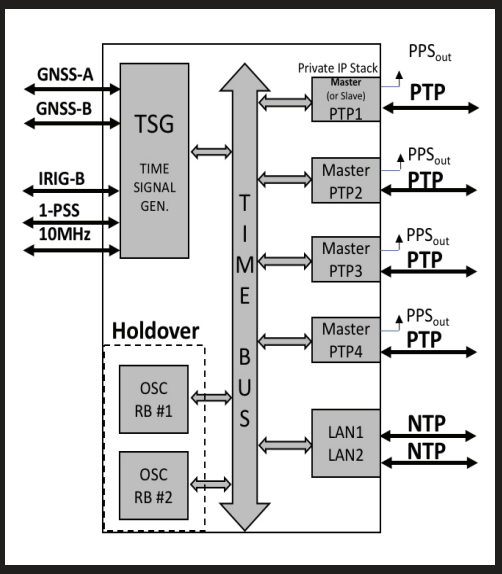
Autonomous PTP Granmaster cards that includes above modules. Single card includes 2x LAN interface (SFP, RJ45)

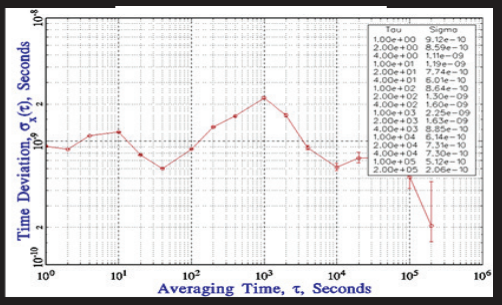


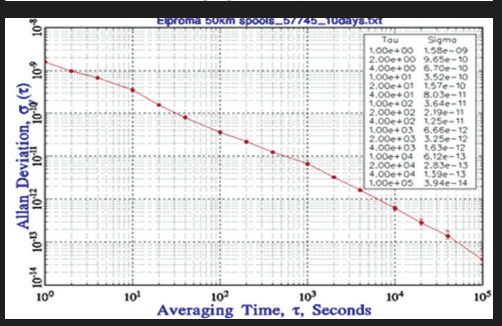
There are max. 4pcs (supporting LAN3-10) autonomous PTP/IEEE1588 grandmaster cards inside NTS-5000. They are all 100% isolated (no TCP/IP communication). Server provides Time Domain to all 4 cards via internal SyncBUS.



Autonomous cards operate in high accuracy Time Domain. PTPT/IEEE1588 card #1 can be set to operate SLAVE mode. All 1-4 cards support PTP GRANDMASTER with profiles: ENERGY, TELECOM, ENTERPRISE and FINANCIAL.







NTS-5000 is Rubidium+OCXO holdover advanced time server. **NTS-5000 LITE** is OCXO only. It delivers UTC time directly to network (max. 10x LAN) using PTP/IEEE1588 and NTP.

LAN1 & LAN2 are 10/100Mbps. LAN3-LAN10 are optional GE Ethernet GRANMASTER PTP/IEEE1588 with hardware stimestamping. Each 1-4 cards has own private IP stack. Cards are 100% isolated each other using one-way analogue synchornization signals.

Server is equipped with 2 independent GNSS receiver inputs (ANT1 & 2) can support independent satellite receivers too. Built-in RUBIDIUM (NTS-5000LITE OCXO only) oscillator guarantees time for long period of missing GNSS signals. Both ANT1/ANT2 interfaces can be switched to output mode emulating GNSS NMEA signals with PPSout. Server can be synchronized to external clocks using 1PPS, IRIG-B inputs, rs232 (ToD). It also provides ref. output time via 1PPS, IRIG-B, rs232, 10MHz, rs232(SYSPLEX,IRIG).

NTS-5000 is STRATUM-1, PTP/IEEE1588 GRANDMASTER supporting hardware stamps. It offers accuracy better than 200ns. Server supports leap second, synchronizes UTC monotonously (jump-free) and can simultaneously serve up to 100,000 NTP clients. Firmware basis on FreeBSD UNIX. Server uptime is counted in years of 24/7 working.

Redundant Synchronization

- 10x (max.) LAN NTP/PTP IEEE1588
- 2x RJ45 (ANT1, ANT2) rs485 w/1PPS:
  - GPS L1 (1575,42MHz)
  - GLONASS L1 (1598,06-1605,38MHz)
  - GALILEO L1 (1575,42MHz)
  - BEIDOU L1 (1561,09-1575,42MHz)
- 2x PPS BNC (50 Ohm) • 2x IRIG-B AM (50 Ohm) • 3x IRIG-B DCLS D-SUB9 • 1x 10MHz other PPx (PPM, PPH) selectible via single PPS BNC connector, 2-pin TB & FO outputs*

Network Time Protocol (NTP/SNTP) supported

• RFC1305 • RFC1119 • RFC5905 - RFC5909 • RFC2030 • RFC1769 • RFC3161 (ready)

Ethernet

- 4x NIC* (each with 2x GE SFP+RJ45 ETH)
- 2x LAN Ethernet 10/100 Base-T (RJ45)
- 2x Antenna INPUT or OUTPUT (RJ45)

I/O

- 5x BNC: PPS/PPM/PPH,IRIG-B AM,10MHz (IRIG - 2pin TB, FO interfaces available*)
- 3x D-SUB9 (IRIG-B DCLS, SYSPLEX)
- 2x USB 2.0 (for firmware uploads)

Remote configuration

• SNMP (v1,2,3) • MIB 2 • RADIUS • HTTP • HTTPS • SSH • TELNET • NTPQ/NTPDC

Antenna & MultiSAT receiver

- 32-170 channel MultiSAT receiver w/ built-in FQ converter
- 700m [2300ft] UTP cat. 5 or 1.4kM [4500ft] STP cat 5 (no need to use amplifiers)
- RS485 (std) or Fiber Optic*

Time Accuracy

- MultisSAT GNSS receiver: better than 15ns
- LAN (PTP/IEEE1588): better than 200ns (typically 25-50ns)
- LAN &VLAN (NTP & PTP/IEEE1588): better than 100us
- Internet NTP: better than 100ms

Mechanical/environmental

- Size: 484 x 300 x 88,8 mm (rack'19 2U)
- Power: 20- 70 VDC (max 2A) - dual redundant*
  110-230 VAC (max 1A) - dual redundant
  120-370 VDC (max 1A) - dual redundant
- Operating temperature: 0°C to +60°C
- Storage temperature: -40°C to +80°C
- Humidity: up to 95%

Approved for:

IEC 61850-3
UL 60950-1/PCC/CE
IEEE1613
IEEE1588:2008 (PTPv2)
ISO9001 Made in EU

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Tested And Approved by NPL (UK)

NTS-5000 has been well NMI laboratory tested at NPL (UK) Left side presents synchronization Time Deviation (TDEV) and Allan Deviation (TDEV) measured January 2017

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