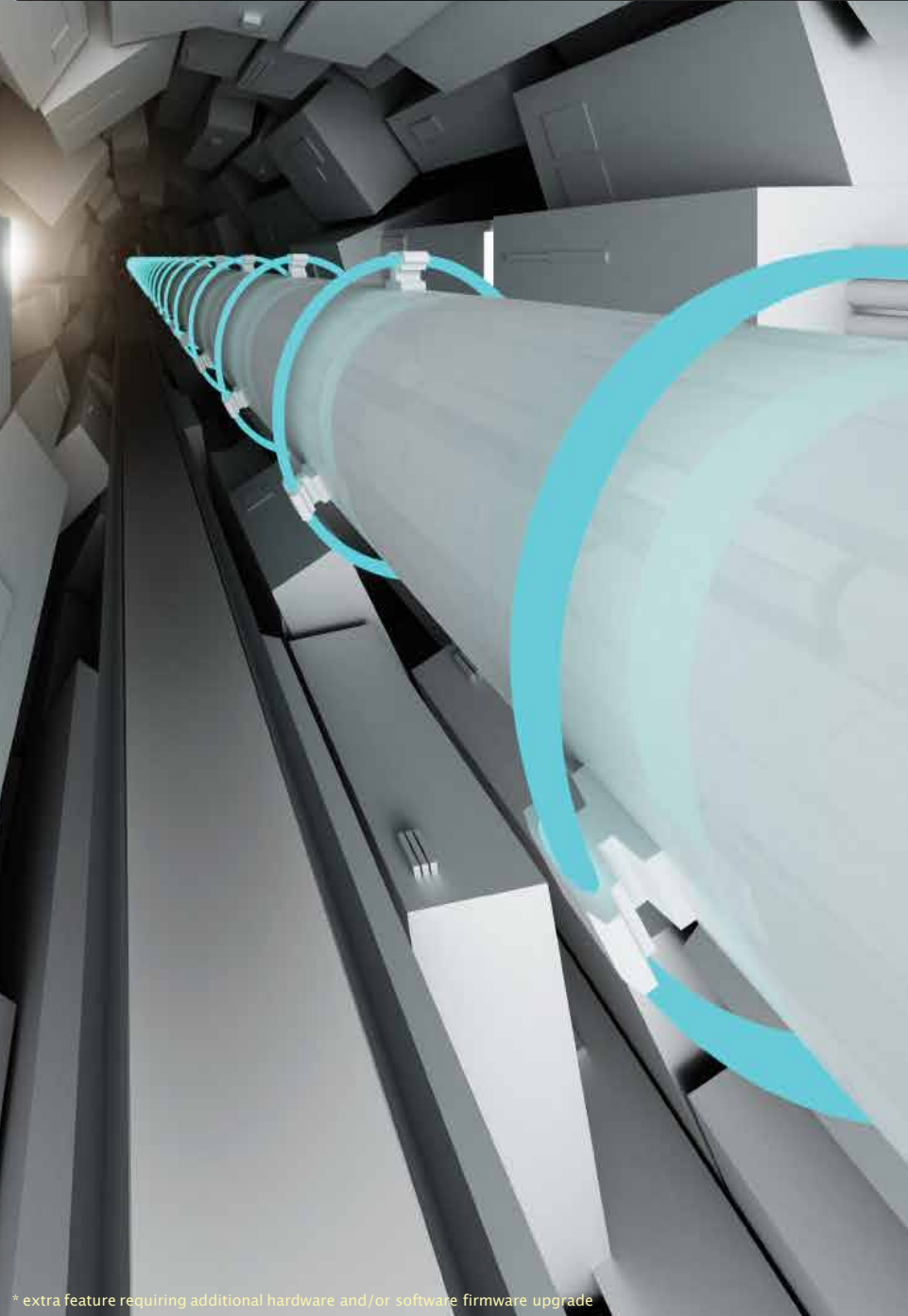


# NTS-5000

## PTP/NTP Ethernet Network Time Server IEEE1588 Master Clock

- STRATUM 1 Server PTP\*/NTP
- GPS +GLONASS +GALILEO
- Dual OSC: Rubidium & OCXO



- IEEE1588 PTPv2 Master Clock\*
- NTP/SNTP Time Server
- SBAS & DCF77\* support
- 2-6\* Ethernet w/ PoE IPv4/6
- PLL/FLL nanosecond accuracy
- Max. 100,000 NTP clients
- Max. 200, PTPv2 clients
- RS232/485 & USB interface
- SNMP v1,v2,v3 & MIB2 agent
- RADIUS client\*
- MD5, RSA, DSA, SSL security
- NTP authentication
- IRIG-B AM & DIGITAL in/out
- 1PPS in/out + 10MHz
- -55C/-67F antenna available\*
- remote configuration:  
HTTP, HTTPS, TELNET, SSH



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



**Server NTS-5000** delivers time directly to network using NTP/SNTP or PTPv2 protocols. It is equipped with 2 (max. 6\*) independent Ethernet ports working with both IPv4/6 protocols. Single server acts simultaneously NTP/SNTP Server and PTPv2\* Master Clock. Multi-satellite GPS +GLONASS +GALILEO signals are standard time reference but time can be simultaneously drawn from other all sources incl. DCF77\*, external CS (cesium) beam such as 5071A atomic clock or any other external 1PPS/RS232 source.

The NTS-5000 is equipped with two redundant A/B antennas inputs, each receiving independent satellite systems simultaneously. Built-in Rubidium+OCXO redundant DUAL osc. guarantees precision stable time for many months SAT-less operation.

NTS-5000 Server is STRATUM-1 NTP/SNTP and IEEE1588 PTPv2 Grand Master Clock. Server synchronizes time monotonously (jump-free) and can simultaneously serve up to 100,000 NTP and 200 PTPv2 clients. Std. version of product incl. 2x LAN (PoE) Ethernet (RJ45) dedicated for NTP/SNTP. Optionally NTS-5000 can be equipped with max. 6x LAN interfaces (incl max. 2pcs for PTPv2 or all 6pcs dedicated for NTP/SNTP). The Fiber Optic\* (FO) of Ethernet is available on request (max. 2 pcs) for NTP & PTP\*.

## Redundant Synchronization Sources – All Served Simultaneously

- INPUT: 2x Antenna (to connect max. 2 independent, redundant 32ch MultiSAT RCV) supported simultaneously SAT systems and frequency ranges:
  - GPS L1 (1575,42MHz)
  - GLONASS L1 (1598,06-1605,38MHz)
  - GALILEO L1 (1575,42MHz)
  - BEIDOU\* /COMPASS/ L1 (1561,09-1575,42MHz)

both powered by •SBAS, and w/ extra RF AM\* decoder • DCF77\* for Central Europe, also • External Clock Devices 1PPS+RS232 • IRIG-B • 2x PTPv2\* Slave CLK • 20x NTP

- OUTPUT: 2x Antenna GPS NMEA emulation for NTP/SNTP STRATUM-2 Time Servers also • 1PPS+RS232 timestamping • IRIG-B • 10MHz SIN • max. 2x PTPv2\* Master CLK • 8x IRIG-B distribution unit\*

## Synchronization Time Protocols: NTP v2,v3,v4, SNTP, PTP/PTPv2\*

- RFC1305 • RFC1119 • RFC5905 • RFC5906 • RFC5907 • RFC1769 • RFC2030
- Full IEEE1588-2008 PTP & PTPv2 (also PTPv3 experimental)\*\*

## I/O

- 2-6\* LAN Ethernet 10/100 Base-T (RJ45), • 2x RS232C (D-SUB9), 1PPS (BNC)
- 2x Antenna RS485(RJ45), • 2x 1PPS (BNC) • 2x USB 2.0 (for firmware upload)
- Custom build Fiber Optic Ethernet

## Remote configuration

- SNMP(v1,2,3) • MIB 2 • RADIUS • HTTP • HTTPS • SSH • TELNET • NTPQ/NTPDC IEC\*61850 (networking)

## Antenna & MultiSAT receiver:

- 32-channel external MultiSAT active receiver w/ built-in antenna and FQ converter
- 600m [2000ft] UTP cat. 5 or 1.2km [4000ft] STP (no need to use signal amplifiers)
- NTS-protect\* surge protectors are available as separate product (Phoenix Contact)
- Custom built\* version of Fiber Optic (or PTPv2) I/O is available on special request

## Time Accuracy

- MultiSAT receiver accuracy is better than: 15x 10E-9s (nS- nanosecond)
- Internal TIME SERVER accuracy is better than: 10x 10E-9s (nS- nanosecond)
- NTP client accuracy over LAN is better than: 100x 10E-6s (uS- microsecond)
- NTP client accuracy over Internet is better than: 100x 10E-3s (mS- millisecond)
- PTP/PTPv2\* master CLK time accuracy is up to: 25x 10E-9s (uS- nanosecond)
- PTP/PTPv2\* slave CLK time accuracy is up to: 50x 10E-9s (uS- nanosecond)

## Mechanical/environmental

- Size: 484 x 300 x 88,8 mm (RACK'19 2U)
- Power: 110/230 VAC (max 1A) w/ 2x PoE
- Operating temperature: 0°C to +50°C
- Storage temperature: -40°C to +80°C
- Humidity: up to 95%

## Lifetime Warranty

is available to buy from distributor NTS-5000 unit has natural cooling (no fan or ventilators) MTBF > .280 million hours [24°C]

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 \* extra feature requiring additional hardware & software

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# NTS-5000x = Special Options

Build your custom time server ideally suited to your individual IT needs

## Extra options:



- 8x IRIG-B OUT distribution  
EXT. ORDERING CODE: x=IB8



- 2x Fiber Optic Antenna  
EXT. ORDERING CODE: x=FO2



- 4x Extra LAN NTP interfaces  
EXT. ORDERING CODE: x=LNy where y= (total #LAN max. 6)
- 2x Extra LAN PTP code x=PT2
- 1x Modem for DialUp service  
EXT. ORDERING CODE: x=MDy  
y=1(STD) y=2(ISDN) y=3(GSM)



- Dual Redundant Power Supply  
EXT. ORDERING CODE: x=PW2

## Standard includes:

- 2x LAN PoE supporting NTP
- Built-in dual OSC Rb+OCXO

- 2x ANT (RJ45) /ANT1 & ANT2/
- 1x 10MHz IN (BNC)
- 1x 10MHz OUT (BNC)
- 1x IRIG-B IN (BNC)
- 1x IRIG-B OUT (BNC)
- 1x 1PPS IN (BNC)
- 1x 1PPS OUT (BNC)
- 1x TIMER IN (DSUB9)
- 1x TIMER OUT (DSUB9)
- 1x RS232/485
- 1x Power Supply AC & DC

## How to order:

NTS-5000	std. NTS-5000 (see above)
NTS-5000IB8	std. NTS-5000+ 8xIRIG-B out
NTS-5000LN6PT1	total 6xLAN (5xNTP; 1x PTPout)
NTS-5000LN4PT2	total 4xLAN (incl PTPin; PTPout)
NTS-5000LN3WP2	total 3xLAN (NTP) + dual PWR
NTS-5000LN6PT1IB8PW2FO2	- max. SERVER config.

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