

# Time transfer system TTS-5

In 2022 we celebrated 30 years since the first, single frequency TTS-1 receiver, the first in the family was introduced, followed by a very successful TTS-2, first multi-channel GPS timing receiver. Then TTS-3, for many years the only GPS & GLONASS receiver on the market. Now TTS-5 continuously improved towards better observation results and deployment of the recent time & frequency progress.

Excellent observation results, long and stable operation, wide configuration possibilities, as well as user friendly solutions are main advantages of the system.

TTS-5 generates data on its own and requires no daily assistance.

The system is working under LINUX providing multitasking and integration with the network.

## Access, Operating & Configuration

Immediate access to observations, receiver configuration and main parameters using:

- built-in touch screen
- Web interface
- external USB keyboard

## Data characteristics & availability

- data type: Code and Carrier
- data output format: CGGTTS, RINEX. data formats
- meet all requirements.
- data availability:
- CGGTTS: 30 sec after each 13-min. observation session
- RINEX: in real time

## Tracking features

### Supported navigation systems:

GPS, GLONASS, Galileo, WAAS/EGNOS, Beidou

### Supported navigation systems:

GPS, GLONASS, Galileo, WAAS/EGNOS, Beidou

### Supported frequencies\*:

GPS: L1, L2, L5

GLONASS: L1, L2, L3

GALILEO: E1, E5A, E5B, altBoc, E6

BEIDOU B1,B2,B3

### Supported codes\*:

GPS: L1C, L1P, L2C, L2P, L5P,CA/LI

GLONASS: L1C, L1P,L2C,L2P,L3

BDS2-B1I, B2, B3

BDS3-B1I, B1C, B2A, B2B, B3, ALTBOC

GALILEO: E1, E5A, E5B, altBoc, E6

\* depends on the options

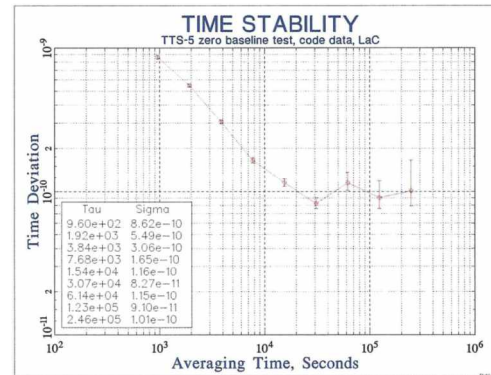
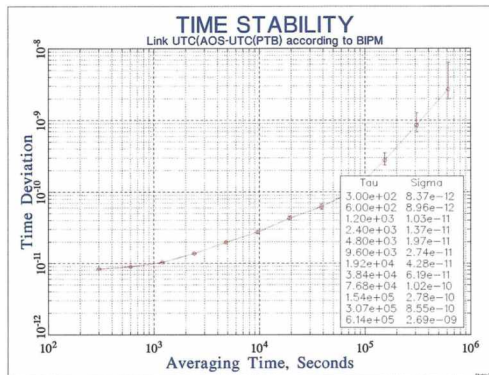
**TTS<sub>5</sub>**  
Time Transfer System-5



## Time stability

Precision for phase observation: for a short term, short baseline precision 12ps RMS.

Precision for code observation: 0.4ns RMS (receivers connected to the same reference standard)



## Data recording & storage

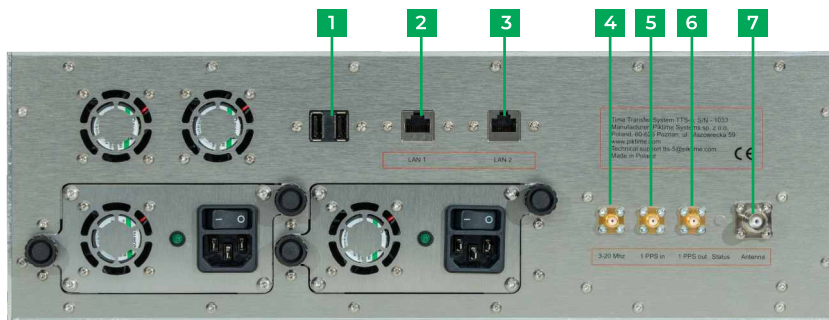
Data can be:

- downloaded using Web interface (using Web browser)
- downloaded using integrated FTP server
- sent to external FTP server (using Web browser)
- saved to USB memory (using console or Web interface)
- 1TB redundant data storage (RAID 1 mirroring, 2x1TB HDD)

## Input/Output

- 5/10 MHz frequency input (selected by user)
- Local reference 1PPS input
- 1PPS output
- Antenna TNC connector
- 1000BASE-T Ethernet port
- 2 USB connectors on the front panel
- 2 USB connectors on the rear panel

## TTS-5 receiver rear panel



1. USB connector
2. Ethernet connector
3. Ethernet connector
4. Auxiliary 5/10 Mhz connector
5. Auxiliary Reference 1 PPS in connector I (Event Marker I)
6. 1 PPS out connector
7. Antenna TNC connector

## Physical & Environmental

Main unit dimensions:

410 mm x 298 mm x 133 mm

Rack ready, light aluminium housing

Touch screen - 7" TFT LCD

Display resolution 1024 x 600

Operating voltage: AC 90~ 264V 47 to 63 Hz Power

Consumption < 40W Redundant power supply

Operating temperature: 0°C to +50° C

Our main concern is improvement of TTS-5 performance. In result, every several months, software upgrade is released and all TTS-5 users are notified. Software upgrades are free of charge. We offer free of charge customer assistance.

Time Transfer System TTS-5 is in compliance with requirements of European Union law.

