

GTR55

Time and Frequency Transfer GNSS Receiver

The GTR55 is a multisystem/multifrequency GNSS (Global Navigation Satellite System) receiver intended for time & frequency transfer. The receiver supports both code and carrier phase measurements. Thanks to large receiver bandwidth and advanced signal processing, even the code measurements provide subnanosecond accuracy. The built-in calibrator measures continuously the internal delays of all supported signals ensuring high long-term stability. The receiver can be directly connected to a local net or internet which allows remote control and output data download and upload.



Operation

The operation is fully automatic. After the very first configuration, the receiver continuously collects the measurement data. Output files in several standard/proprietary formats can be generated from the collected data. The data processing can be started manually or by a scheduler which enables routine processing at given times (daily,

weekly, ...). The resulting data files can be downloaded from the receiver, automatically uploaded to a server or automatically saved to an external disk. A brief message is sent to an e-mail address after the processing is finished.

The output measurement data can be referenced to the input 1PPS and/or to the output 1PPS time mark.

Remote control

The receiver can be controlled from any computer on the net. The User Interface has the form of a web page which can be accessed using a web browser. It enables control of the receiver, monitoring of the receiver operation, and download of the measurement data. Authorization is required to access the receiver.

Diagnostic system

The diagnostic system indicates several dozens of operational events and states. The diagnostic messages can be recorded in the log, displayed in the User Interface, and sent to an e-mail address.

Monitoring with graphical representation

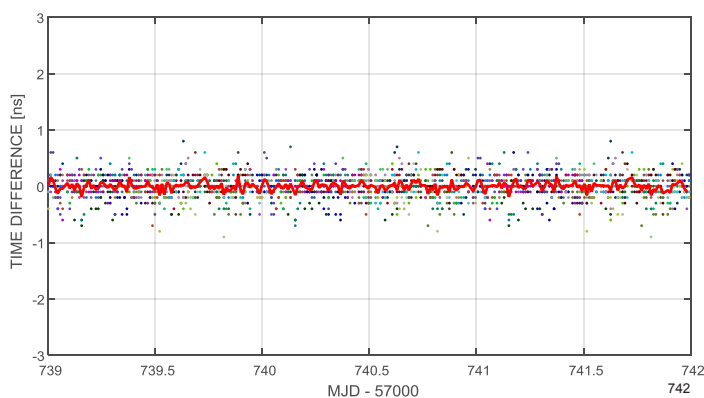
History of operational parameters (time difference, temperature, satellite elevation/azimuth, ...) is displayed in graphs in the User Interface.



Technical parameters:

| Time Reference Input: | |
|---|---|
| Input signal | 1PPS (leading edge) |
| Input impedance | 50 Ω |
| Trigger level | 0 - 2.5 V adjustable |
| Max level | 5.5 V / 50 Ω |
| Min level | -0.1 V / 50 Ω |
| The 1PPS time mark must be coherent with the frequency reference at the 10 MHz input. | |
| Time Reference Output: | |
| Output signal | 1PPS (leading edge) |
| Low level | <0.05 V / 50 Ω |
| High level | >1.8 V / 50 Ω |
| Frequency Reference Input: | |
| Input signal | 10 MHz |
| Input impedance | 50 Ω |
| Max level | 3 Vpp / 50 Ω |
| Min level | 0.5 Vpp / 50 Ω |
| Precision: | |
| Code measurement | < 0.3 ns RMS (CGGTTS data, short-baseline common view) |
| Carrier phase measurement: | < 15 ps RMS (short-baseline common view) |
| Output Data Formats: | |
| CGGTTS (L3P_30s) | all tracks / all satellites in view, MSIO iono-delay, version V2E; both standard CGGTTS and P3 data at once; 30 s sampling period; all GPS, GLONASS, Galileo, BeiDou, IRNSS signals |
| BETA | V2E; both BETA and ESA data = non-standard CGGTTS and P3 data with track length of 5 minutes |
| RINEX | observation / navigation files versions 2.11 (GPS, GLONASS, Galileo, SBAS only), 3.01 (GPS, GLONASS, Galileo, SBAS, BeiDou-2 only) and 3.04 (all systems, all signals including BeiDou-3 and IRNSS) |

| RAW | proprietary format, all signals, both code and carrier phase data, GPS, GLONASS, Galileo, BeiDou, IRNSS, SBAS |
|---|---|
| ESA | V01; ESA data = P3 data with track length of 5 minutes |
| 1PPS_DIF | proprietary format, difference REF_IN - REF_OUT |
| EL_MASK | CNR analysis and search for obstacles |
| STAT | statistics of collected measurement data |
| The output measurement data can be referenced to the input 1PPS and/or to the output 1PPS time reference. | |
| GNSS Receiver: | |
| Supported signals: | |
| GPS | L1 C/A, L1C, L1P, L2C, L2P, L5 |
| GLONASS | L1OF, L1SF, L2OF, L2SF, L3OC |
| Galileo | E1, E5a, E5b, E5 AltBOC, E6 |
| BeiDou | B1, B2, B3; B1C, B2a, B2b, B2 ABOC |
| IRNSS | L5, S (optional feature) |
| SBAS | L1, L5 |
| Type of measurement | code / carrier phase, referenced to input / output time reference |
| Receiver bandwidth | up to 60 MHz |
| Number of satellites | all in view |
| Built-in calibrator measures continuously the internal delays of all supported signals including GLONASS inter-channel biases ensuring low temperature dependence and high long-term stability. | |
| Dimensions: | 19" / 2U standard chassis |
| Power Supply: | 100 - 240 V AC / 50 - 60 Hz |
| Operating Temperature: | 0 to 50°C |
| Antenna: | |
| Antenna supply | 5 V / up to 90 mA (plus on inner contact) |
| Recommended antenna | Novatel GNSS-850 |



Example of a short baseline comparison error, CGGTTS V2E data, GPS L1 C/A signal, 31 satellites.



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