

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

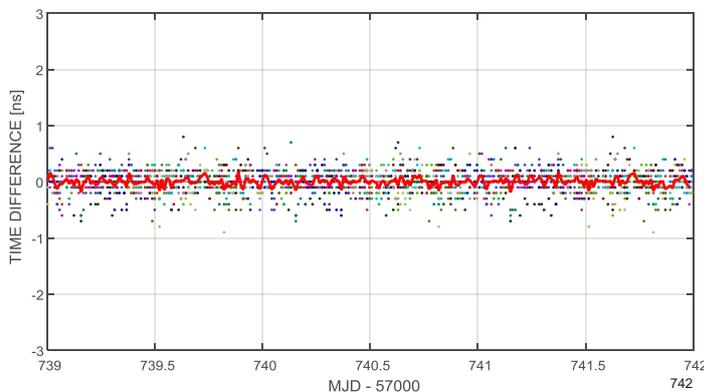
History of operational parameters (time difference, temperature, satellite elevation/azimuth, ...) is displayed in graphs in the User Interface.



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 V _{pp} / 50 Ω
Min level	0.5 V _{pp} / 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, NAVIC 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 NAVIC)

RAW	proprietary format, all signals, both code and carrier phase data, GPS, GLONASS, Galileo, BeiDou, NAVIC, 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
NAVIC	L5
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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