Quality&**Precise**

MAXWELLON GMX8220

BD / GPS / GLONASS

Navigation Signal Simulator

2023

Maxwellon

The GMX8220 dual frequency navigation signal simulator provides satellite navigation signal simulation for global satellite navigation systems. Each frequency point can generate 12 satellite signals, supporting signal simulation outputs composed of any two frequency points in BD / GPS / GLONASS. It provides high stability standard 1PPS pulse signals and 10MHz clock signal outputs, which can meet the design, development, production testing, teaching demonstrations of various user dual frequency terminal devices Routine testing and other application requirements.

Key Feature

Satellite orbit simulation, satellite clock deviation simulation, TGD simulation, ionospheric delay simulation, tropospheric delay simulation, Earth rotation effect simulation, relativistic effect simulation, ground atmospheric parameter simulation, and user trajectory simulation.

Static and dynamic trajectory generation and testing, independent setting capabilities for pseudorange and power of each channel, generation of navigation messages for constellation models, programmable signal scene generation, parameter settings for atmospheric and ionospheric models, observation data and navigation message recording and output

Constellation simulation

Satellite orbit simulation, satellite clock deviation simulation, TGD simulation, Earth rotation effect simulation, relativistic effect simulation, etc. of BD constellation.
Simulate the generation of satellite orbits, observation data, and navigation messages for the BD constellation, which can simulate changes in satellite signal intensity during carrier movement.

Trajectory simulation

Static and dynamic trajectory generation, capable of simulating the motion characteristics of static and dynamic carriers, and simulating the generation of user motion trajectories; At the same time, it can simulate special motion trajectories such as circles and spirals.
It has a special scene simulation function, which can simulate and generate special scenes with fixed pseudorange, fixed speed, and fixed acceleration.
Support satellite trajectory simulation and real-time navigation scene simulation with input of orbit parameters and start time.
Support storage and repeated playback of navigation scenes.

Environmental simulation

It can simulate the impact of various error sources on navigation signals during atmospheric propagation, and can turn on and off the impact of error sources, including ionospheric delay, tropospheric delay, atmospheric parameters (temperature, humidity, pressure, etc.), as well as the double atmospheric effect caused by two satellite signals crossing the atmosphere from the far side.

Abnormal simulation

Capable of simulating various satellite navigation system faults, including signal loss/interruption, pseudorange or carrier and power anomalies. User can set satellite integrity parameters, including satellite health words, URA, regional user distance accuracy index (RURAI), etc.

Simulation control

Support configuring simulation time, static carrier trajectory, dynamic carrier trajectory, special carrier trajectory and other parameters through human-computer interaction interface, and can specify external input trajectory files.
Capable of setting parameters such as pseudorange and power for each channel, as well as ionospheric delay, tropospheric delay, and atmospheric parameters (temperature, humidity, pressure, etc.).
It has the function of recording and outputting observation data and navigation messages.

Extended functionality

Optional navigation simulation analysis and evaluation system can be equipped to complete real-time evaluation and report output of user machine sensitivity, positioning accuracy, speed measurement accuracy and other indicators.
Navigation simulation analysis and evaluation system software is a set of simulation testing software developed for user machine functions and performance. The software includes testing items such as positioning and speed accuracy evaluation, signal re capture time evaluation, initial positioning time evaluation, bit error rate evaluation, tracking sensitivity evaluation, channel delay consistency evaluation, and tracking channel number evaluation.

Specification

Frequency	
Type	B1/L1
Signal Scale	
Number of channels	12 channels per frequency point
Multipath quantity	1-4 channels per frequency point (multiplexing)
Signal	
Phase noise	-75dBc/Hz (100 Hz)
	-80dBc/Hz (1kHz)
	-85dBc/Hz (10kHz)
	-90dBc/Hz (100kHz)
Harmonic power (Max)	-35dBc
Clutter power (Max)	-40dBc
Signal Power	
Power range	-150dBm~-60dBm
Power resolution	better than 0.2dB
Power accuracy	better than 0.7dB
External Interface	
Reference 1PPS pulse signal (BNC)	1 input and 1 output
Reference 10MHz clock signal (BNC)	1 input and 1 output
RF output port (N)	1
Clock stability	
Second Stability	$\leq \pm 5 \times 10^{-11}$
Day Stability	$\leq \pm 5 \times 10^{-10}$
External reference input	
1PPS pulse signal	1 channel
10MHz clock signal	1 channel
Standard reference output	
1PPS pulse signal	1 channel
10MHz clock signal	1 channel

Output pps	
Output level	LVTTL
Rising edge stability	0.1ns
High level duration	>20ms
Work environment	
Working temperature	-10 ℃ -+55 ℃
Humidity	10% to 75% (22 ℃), ≥ 90% (45 ℃)
Storage and Transportation	
Impact	≤ 9g/s
Vibration	≤ 0.1g/(10Hz~100Hz)
Humidity	≤ 98%
Storage temperature	-45C~+75C
Power supply	
AC voltage 200V-250V, frequency (50 ± 10) Hz, DC ripple ≤ 3%	
Automatic protection in case of abnormal power supply	

Ordering Information

Standard

Name	Describe	Qty.
Hardware	Chassis	1pc
	Power Module	
	Time Frequency Module	
	Master Control	
	Signal Merging	
	Attenuator	
Software	Simulation control	1pc
	Scene editing	
	Constellation simulation	

Option

Constellation	Output Signal			Ordering	Notes
BDS	BDS B1 BDS B1C	BDS B2 BDS B2a BDS B2b	BDS B3	4 weeks	Choose any 2 frequency point
GPS	GPS L1	GPS L2	GPS L5		
GLONASS	GLO L1	GLO L2	-		
Galileo	GAL E1	GAL E5	-		

Maxwellon Electronic Instruments Co.,LTD.

Factory: No.6 XiangJiang Road, Qingdao 266000, China
Tel: 0086 13816527810

Sales Office: NO.153 Zhuzhou Rd.,Laoshan District, Qingdao 266100, China.
Tel: 0086-532-80977508
Fax: 0086-532-80977508

Sales: Sales@Maxwellon.com
Web: www.maxwellon.com