ER-8000 Multi-System Satellite Navigation Signal Simulator

Product introduction:

ER-8000 Multi-system satellite navigation signal simulator can simulate BDS, GPS, GLONASS and Galileo global satellite positioning system (GPS) satellite navigation signals, can be used for many system compatible with the terminal equipment development, production, testing, testing and inspection.

Features:

- The basic support of satellite navigation signal simulation BDS, GPS, GLONASS and Galileo system at the same time;

- The basic support receiver antenna modeling;

- The basic simulation vector rotation;

- Can an inertial aided information output high dynamic scene receiver is required;

- The basic control software easy to use, flexible and powerful;

- Have an evaluation software to evaluate the performance of user machine;

- The basic simulation with the Beidou satellite navigation system (BDS) P code function.

Function:

- Support frequency points including the beidou satellite navigation system (BDS), B1, B2, B3, GPS L1 and L2 and L5, GLONASS L1, L2, and Galileo E1, E5a, E5b frequency points, choose 3 to 11 frequency points;

- Configuration data simulation software, can according to user requirements to configuration of simulation data, such as satellite orbit data, ionosphere, troposphere parameters, track users, etc.;

- Control software for satellite navigation signal simulator interruption of the output signal, signal restoration, switch every visible star signal, modulation mode selection and power control, etc.;

- Evaluation software, can test the receiver positioning for the first time, speed, sensitivity and positioning time and other indicators;

- Anomalies can emulate a satellite pseudorange, to test the receiver autonomous function;

- LCD display content: satellite number, channel number, the simulation time, doppler, pseudorange, satellite power, carrier information such as position and vehicle speed;

- Satellite navigation signals can be output through a cable or by an antenna.

Optional Configuration:

(1) Real-time closed-loop

　　The real-time closed-loop function is added, the carrier motion trajectory is received in real time, and the satellite navigation data are generated in real time, so as to meet the closed loop simulation test requirements of real-time hardware in the loop simulation system under multi signal system.

(2) Inertial navigation AIDS

　　The auxiliary receiver can capture, track and locate in high dynamic, with the addition of inertial navigation aid, synchronous output of 3d position, 3d speed and 3d acceleration with satellite navigation signal.

(3) Multi-path signal

　　Each frequency point can increase the output of 12 multi-path signals and main path signals.

(4) Carrier rotation simulation

　　When the carrier rotates, the satellite navigation signal changes.In order to make the satellite navigation receiving equipment in ground test, fully simulate the real movement situation.

(5) Multiple antennas

　　Increasing the number of simulated antennas, the single simulator can support the simulation of four antennas.

Application field:

- Satellite navigation terminal equipment research, development, testing;
- Hardware-in-the-loop simulation system real-time closed-loop test;
- Type anti-jamming satellite navigation receiver research, development, testing;
- Orientation, pose measurement equipment research, development, testing and simulation.

Performance index:

The output frequency

BDS B1、B2、B3

GPS L1、L2、L5

GLONASS L1、L2

Galileo E1、E5a、E5b

Signal generator unit

Number of generator channels：12 (per frequency point)

Multi-path signal number：12 (per frequency point)

Signal dynamic characteristic

Maximum speed：±36,000m/s

Maximum acceleration：±1,500m/s^2

Maximum acceleration rate：±3,000m/s^3

Accuracy of the signal

Accuracy of pseudo distance phase control：better than 0.05m

Accuracy of pseudo distance change：better than 0.005m/s

Inter-channel consistency：<0.05m (code)

Initial coherence of carrier and pseudo-code：<1 degree

Signal quality

Hybrid power (Max)：-50dbc

Harmonic power (maximum)：-40dbc

Phase noise：-80dbc/Hz @100hz

　　　　　　　-90dbc/Hz @1khz

　　　　　　　-95dbc/Hz @10khz

　　　　　　　-95dbc/Hz @100khz

Frequency stability：±5×10-11/s

Signal level control

Adjustment range：-110dbm ~ 150dBm

　　　　　　　　-30 dBm ~ 70dBm

Resolution: 0.2db

Calibration accuracy: 0.5dB

Signal output mode

　　　Cable directly or wirelessly

External interface

Rf output：N-type head

External clock input：BNC Female, 10MHz

Internal clock output：BNC Female, 10.23MHz

Second pulse output：BNC Female, 1PPS

Synchronous trigger input/output：BNC Female

External control port：Ethernet port

Power features：AC 220V, 50Hz

Physical properties

Dimensions (wide x height x depth)：445mm x 222mm x 611mm

Weight：≤30kg

Environmental requirements

Working humidity：75% or less (23 ℃)

Working temperature：0 ℃ to + 50 ℃

Storage temperature：- 30 ℃ ~ + 70 ℃

Vibration: ≤0.2g/100Hz (maximum)

Transportation requirements：meet the requirements of three levels of road transportation

Reliability

Mean Time Between Failures(MTBF)：≥3000 hours

Mean time to repair (MTTR)：≤2 hours

A continuous working time：≥24 hours

Computer workstation recommendation configuration

Operating system：Windows XP/Windows 7 32bit

Processor：intel @2GHz or higher

External interface：RS232 and gigabit Ethernet ports