



NS8340 Series GNSS Constellation Simulator

Datasheet



Saluki Technology Inc.

The document applies to the GNSS constellation simulator of the following model:

- NS8340 Series

Standard package and accessories:

No.	Item
1	Main Machine
2	User manual
3	Power cable
4	Bundled RF cable
5	IPC monitor

Options of the NS840 series GNSS constellation simulator in addition to standard accessories:

Model No.	Description
NS8340-01	BeiDou System: B1
NS8340-02	BeiDou System: B2
NS8340-03	BeiDou System: B3
NS8340-04	GPS: L1
NS8340-05	GPS: L2
NS8340-06	GPS: L5
NS8340-07	GLONASS: L1
NS8340-08	GLONASS: L2
NS8340-09	Galileo: E1
NS8340-10	Galileo: E5a
NS8340-11	Galileo: E5b
NS8340-12	RDSS: S
NS8340-13	RDSS: L

Preface

Thank you for choosing NS8340 series satellite navigation signal simulator produced by Saluki Technology Inc.

We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

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Document Authorization

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Product Quality Assurance

The warranty period of the product is 36 months from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period.

Product Quality Certificate

The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

Contacts

Service Tel: 886. 909 602 109

Website: www.salukitec.com

Email: sales@salukitec.com

Address: No. 367 Fuxing N Road, Taipei 105, Taiwan (R.O.C.)

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1. Overview

Saluki NS8340 series GNSS constellation simulator is a multi-constellation and multi-frequency point analog source for global satellite navigation systems. The NS8340 series has satellite navigation signal analog output capability with BDS constellation (36 RNSS), GPS constellation (32), GLONASS constellation (24), Galileo constellation (24) and its mixed constellation, providing high stability standard 1PPS pulse signal and 10MHz clock signal output. It is suitable for various user machine design and development, production testing, teaching demonstration, equipment testing and routine detection applications.

Main functions:

- (1) Constellation simulation: ability to complete satellite orbit simulation, satellite clock error simulation, delay differential TGD simulation, earth rotation effect simulation, relativistic effect simulation, etc.
- (2) Trajectory simulation: has static and dynamic trajectory generation capability, and can simulate the motion characteristics of sports carriers such as vehicles, ships, and aircraft. At the same time, it has special scene simulation functions such as spirals.
- (3) Environmental simulation: ionospheric delay simulation, tropospheric delay simulation, ground atmospheric parameter simulation, etc.
- (4) Simulation control: independent setting capability of pseudo-range and power for each channel, generating navigation and telegram capability for the constellation model, and setting parameters for atmospheric layer and ionospheric model parameters.
- (5) **Multi-frequency point output:** supports signal simulation output of any frequency combination of four satellite navigation systems.
- (6) Multi-function: optional components including inertial navigation, interference signals, spoofing signals, real-time closed-loop simulation, optical fiber communication interface, serial timing component and scam signal integration to achieve the corresponding test functions.

1. 1. Definitions

Specification (Spec.)

Specifications describe the performance of parameters within the warranty of the instrument. Product specifications applies under the following conditions:

- 1) Two hours storage at ambient temperature(0-40°C) followed by 30 minutes warm-up operation
- 2) Specified environmental conditions met
- 3) Instrument is within its calibration cycle.
- 4) The specification listed in the datasheet includes measurement uncertainties.

Data in this document are Spec. unless otherwise noted.

Typical (typ.)

Typical data is not guaranteed by instrument warranty. It describes additional product performance information that 80 percent of the units exhibit. Typical data only valid at 25°C. Typical performance does not include measurement uncertainty.

Nominal (nom.)

Nominal values indicate expected performance, or describe product performance that is useful in the application of the product, but are not covered by the product warranty.

2. Specifications

2. 1. Signal Simulation Performance

2. 1. 1. Signal Output Frequency

No.	Signal Type	Frequency
1	Beidou B1	1561.098MHz
2	Beidou B2	1207.14MHz
3	Beidou B3	1268.52MHz
4	GPS L1	1575.42MHz
5	GPS L2	1227.60MHz
6	GPS L5	1176.45MHz
7	GLONASS L1	1602.000MHz
8	GLONASS L2	1246.000MHz
9	Galileo E1	1575.42MHz
10	Galileo E5a	1176.45MHz
11	Galileo E5b	1207.14MHz
12	RDSS L	1618.25MHz
13	RDSS S	2491.75MHz

2. 1. 2. Signal Accuracy

No.	Parameters	Range
1	Pseudorange control resolution	<0.05m
2	Pseudorange rate change accuracy	<0.005m/s
3	Channels consistency	0.3ns

2. 1. 3. Signal Scale

No.	Parameters	Range
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1	Channel number	12/16 per frequency (optional)
2	Multipath number	4/24 per frequency (optional)

2. 1. 4. Signal Power Control

No.	Parameters	Range
1	Power range	-150dBm to -60dBm
2	Resolution	Superior to 0.2dB
3	Absolute accuracy	Superior to 0.2dB

2. 1. 5. Signal Dynamic Performance

No.	Parameters	Range
1	Relative velocity	0 - 16,000m/s
2	Relative Acceleration	0 - 900m/s ²
3	Relative Jerk	0 - 900m/s ³

2. 1. 6. Phase Noise

No.	Frequency Level	Noise Value
1	100Hz	-75dBc/Hz
2	1kHz	-80dBc/Hz
3	10kHz	-85dBc/Hz
4	100kHz	-90dBc/Hz

2. 1. 7. Spurious Level

Spurious Level	<-40dBc
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2. 1. 8. Harmonics Level

Harmonics Level	<-35dBc
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2. 1. 9. External Interface

No.	Interface	Item
1	1PPS/10MHz pulse signal input port	1 BNC-type
2	1PPS/10MHz pulse signal output port	1 BNC-type
3	RF output port	1 N-type

2. 1. 10. Frequency Stability

Frquency Stability	$\leq 5 \times 10^{-11}/\text{sec}$, $\leq \pm 5 \times 10^{-10}/\text{day}$
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2. 1. 11. Output Second Pulse Indicator

No.	Parameters	Range
1	Output level	1LVTTL
2	Rising edge stability	0.1ns
3	High level duration	>20ms

2. 1. 12. Closed Loop Delay (Optional)

Real-time Performance	Superior to 10ms
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2. 1. 13. Inertial Navigation Simulation (Optional)

No.	Parameters	Range
1	Data output rate	400Hz/s (max.)
2	Unit signal accuracy	0.1n mile/h
3	Output delay	$\pm 500\text{ms}$
4	Adjustable step	1us

2. 2. General Information

Power Supply	AC power, 220V \pm 20V
Operation Temperature	-20°C - +50°C
Storage Temperature	-45°C - +75°C
Size	484.1 * 482.6 * 175mm

2. 3. Compliant

2. 3. 1. CE



- EMC

Complies with the requirements of the **EC EMC** directives.

Test Standards:EN 61326

- Safety

Complies with **EC LVD** Directive.

Test Standard:**EN61010-1**

2. 3. 2. ISO



- Manufacturing

This instrument is manufactured in an ISO-9001 registered facility

- End of Document -