GPS/SBAS Signal Generator
GSS4100

The GSS4100 GPS Simulator from Spirent is a complete, low-cost single-channel RF generator for testing satellite navigation equipment, especially in a manufacturing environment, in the laboratory or in the field.

Features

- Supports both GPS and SBAS signals in a single package as standard
- Full control over signal content and dynamics
- Integrated ATE and stand-alone instrument modes
- Fully user-definable data messages using ***SimCHAN*** software
- Stable and accurate all-digital FPGA architecture
- Industry-standard GPIB control for ATE
- Low cost
- Rack mount kit available

The GSS4100 generates either a GPS L1 C/A code signal or a Space Based Augmentation System (SBAS) signal (WAAS/EGNOS/MSAS).

The GSS4100 provides both IEEE-488 (GPIB) and USB interfaces for integration into a user's test environment. The GSS4100 also supports synchronization to other systems via its 1PPS/Trigger, Frequency Standard input/output and its 1PPS output.

Control is provided over all aspects of the generated signal, including PRN, power level, doppler, time of the simulation and signal/message content. This capability is accessed either in a stand-alone interactive mode, using the supplied SimCHAN software for Windows® via USB, or in a fully integrated ATE mode via the documented GPIB control interface.

Typical applications include GPS and Wireless Location production test ATE, fault analysis, parametric evaluation, and prototype transmitters.

For users interested in pseudolites, the GSS4100-P will generate a high-powered GPS L1, pseudolite signal with a selectable CDMA/TDMA pulsing sequence as defined by RTCM-SC104. The GSS4100-P supports all the features and functionality of the GSS4100.

GPS/SBAS Signal Generator: GSS4100

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SPIRENT *Analyse | Assure | Accelerate™*

Specification

Output Frequency

Nominal	L1 @ 1575.42MHz
Doppler Range	±15,000m/s
Stability	‹5 x 10^{-10} per day ‹1 x 10^{-8} over temperature range

May also be frequency locked to an External standard of 1,5 or 10MHz

Signal Quality

Spurious (in GPS band)	‹-30dBc
Carrier Phase Noise	0.1 rad RMS typical integrated, 10Hz to 10kHz offset

Signal Level

Nominal	-130 dBm (Front panel RF connector) -70 dBm (Rear panel RF connector-typical)
Range	±20 dB
Resolution	0.1 dB

Signal Content

Ranging Code	PRN 1-37 GPS PRN 120-138 SBAS (All 1023 G1/G2 codes supported) PRN 1-37 RTCM-SC104 (GSS4100-P only) On/Off control
Data message (Content user definable)	50 bps for GPS 250 bps for SBAS, with FEC to 500 sps

Connections

RF Output	Type N female co-axial (Front) Type SMA female co-axial (Rear)
External Standard (in)	In BNC female co-axial
External Trigger (in)	In BNC female co-axial
Internal (out)	10MHz Out BNC female Co-axial
Other Digital Signals available	15-way 'D' connector (1PPS in/out, Chip Clock, Range Code, Navigation Data bits, Code epochs)

Size

(HxWxD overall)	99 x 254 x 345mm (3.9 x 10 x 13.6inch)

Weight

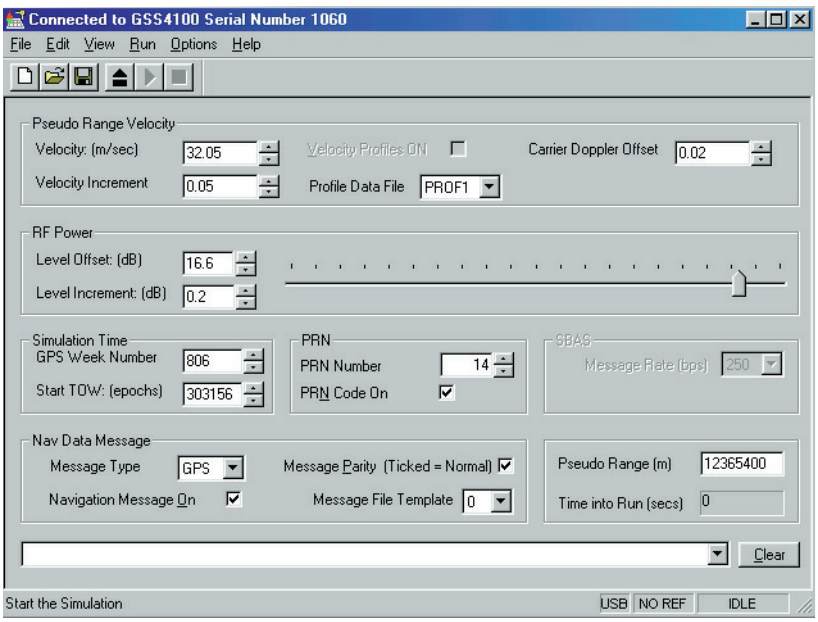
- 5kg (11lb) approx.

Product specifications (MS2997) and for GSS4100-P (MS3001) are available on request.
Performance figures and data in this document are typical and must be specifically confirmed in writing by Spirent Communications (SW) Ltd. before they become applicable to any particular order or contract.

The publication of information in this document does not imply freedom from patent or other rights of Spirent Communications (SW) Ltd. or others.

For current product data, visit the Spirent website at www.positioningtechnology.co.uk

SimCHAN for Windows® User Interface (GSS4100 operating in stand-alone interactive mode)



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