GSG-L1
GPS Signal Generator

- Very accurate one-channel GPS signal generator
- Ideal for GPS receiver production test purposes
- Wide RF output power range enables both conducted and air-to-air testing
- Fully programmable with easy to use I/O protocol
- Communicates via USB or RS232
- Affordable

GSG-L1
The GSG-L1 is a GPS signal generator that emulates a single GPS L1 signal. The main application is a simple but very fast manufacturing test, to assure that the assembly is correct, that the antenna is properly connected, and that the receiver can receive and identify a satellite signal.

GSG-L1 provides a fast and cost-effective solution for production test of GPS-receivers in e.g. mobile phones with integrated GPS-receivers. Thanks to the wide RF level range from –70 to –170 dBm (–70 to –150 dBm calibrated), the sensitivity of all types of GPS receivers can be verified with a minimum of delay.

The GSG-L1 GPS Signal Generator generates an RF-signal, an L1 carrier that is BPSK modulated with the C/A code and navigation signal. The navigation data is transferred to the GSG-L1 via the RS232 interface port from a host computer SW. A PC control program is supplied, with an utility able to generate GPS subframes from existing RINEX files.

Input and Output Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>RF signal GPS L1</td>
<td>Number of output channels: 1</td>
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<tr>
<td></td>
<td>Data format/frame structure: 50 bps (GPS) or 250 bps (SBAS)</td>
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<td></td>
<td>Spurious transmission: &lt;30 dBc</td>
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<td></td>
<td>Output signal level: –70 to –150 dBm calibrated (+1 dBm); –150 to –170 dBm uncalibrated; 0.1 dB resolution</td>
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<td>Frequency: 1575.42 MHz</td>
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<td></td>
<td>Freq adjust range/Doppler range: ±5 kHz TCXO, 1 Hz resolution</td>
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<tr>
<td>Interface</td>
<td>RS232 and USB (via supplied converter)</td>
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</tbody>
</table>

Built-in Timebase

- Internal timebase
- TCXO

Settings controlled via RS232/USB

- Satellite PRN number: 1-37 (GPS) or 120-158 (SBAS)
- Zcounts: timestamp of message info
- Navigation/Ephemeris subframe message: user definable
- RF mode: OFF, continuous, un-modulated, pulsed (RTCM 104)

General Specifications

- Dimensions: Width x Height x Depth: 140 x 140 x 70 mm (5.5” x 5.5” x 2.8”)
- Weight: approx 1 kg (approx. 2 lb)

Optional Antenna

- Frequency: 1575.42 ±2 MHz
- Impedance: 50 Ω
- VSWR: <2:1 (typ)
- Op. Temperature: –40°C to +85°C
- Connector: SMA male
- Dimensions: 12 mm diameter x 38 mm length

Technical Specifications: GSG-L1

Environmental
- Temperature:
  - –20°C to +65°C (operating)
  - –55°C to +85°C (storage)
- Power
  - 100-240 V, 50/60 Hz, ±10%

Ordering Information

Basic Model
- GSG-L1: GPS Signal Generator; 1 channel
- Included with instrument:
  - Antenna cable, 1.5 m
  - PC control program (Windows Vista/XP/2000)
  - RS232 cable
  - USB to RS232 converter

Options
- Option 01/70: Antenna

Specifications subject to change or improvement without notice.
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