



# GSG-L1

## GPS Signal Generator

pendulum

- 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

#### RF signal GPS L1

**Number of output channels:** 1

**Data format/Frame structure:**

50 bps (GPS) or 250 bps (SBAS)

**Spurious transmission:** <30 dBc

**Output signal level:**

-70 to -150 dBm calibrated ( $\pm 1$  dBm); (-150 to -170 dBm uncalibrated); 0.1 dB resolution

#### Frequency

1575.42 MHz

#### Freq adjust range/Doppler range

$\pm 1$  kHz (OCXO);  $\pm 5$  kHz TCXO, 1 Hz resolution

#### Interface

RS232 and USB (via supplied converter)

### Built-in Timebase

#### Internal timebase

TCXO (standard), OCXO (optional)

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### 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

**WidthxHeightxDepth:**

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  $\pm 2$  MHz

**Impedance:** 50  $\Omega$

**VSWR:** <2:1 (typ)

**Op. Temperature:** -40°C to +85°C

**Connector:** SMA male

**Dimensions:** 12 mm diameter x 38 mm length

### Environmental

#### Temperature:

-20°C to +65°C (operating)

-55°C to +85°C (storage)

#### Power

100-240 V, 50/60 Hz,  $\pm 10\%$

### 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

Antenna

OCXO (instead of TCXO)

July 14, 2010 - 4031 600 01101 rev. 04

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