



SYL-SIM-GEN2

2/3/4 channel GNSS simulator

Datasheet

General Description

The SYL-SIM-GEN2 is a 2/3/4 channel GNSS simulator that is used together with the SDGPS™ software suite to simulate a wide variety of GNSS scenarios.

SDGPS™ generates a "raw" I/Q data stream, which the SYL-SIM-GEN2 translates into electrical RF and timing signals.

The simulator hardware consists of a multi-channel, multi-band software-defined RF transmitter with standard timing signal inputs and outputs and tight control of inter-channel and inter-band delay biases.

Features

- 2, 3 or 4 channel output available
- Simple CLI configuration interface
- GNSS disciplined oscillator output
- Integrated GNSS receiver
- Embedded display
- Real-time trajectory control
- HIL (hardware-in-the-loop) capable
- Orbital scenario support ¹
- Multivehicle support
- Ionospheric and tropospheric simulation support
- Extensive logging and playback support
- 3D scenario visualizer
- All-in-view simulation



Performance

Supported bands

GPS	L1, L2C, L5
Galileo	E1B, E5a ² , E5b, E6 ²

Signals

Number of independent signals ³	600
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Iteration rates

Simulation iteration rate	100 Hz
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Timing

PPS to RF output alignment	<±1 ns
Inter-channel alignment	<±2 ns

Per channel bandwidth modes

Default	3 x 25 MHz bands ⁴
High bandwidth	2 x 250 MHz bands ⁵

Free evaluation program

Contact us at sales@sylphase.com to see if you qualify for our free 30 day evaluation program.

Example simulation⁶

GNSS simulation of our Houston, Texas headquarters on all supported bands

```
sdgps \  
  generate-simple-trajectory --position-ecef '[-521825,-5521418, 3139402]' \  
  ! simulate-raw --config sylphase-simulator: \  
  ! sylphase-simulator
```

¹For qualified customers

²Signal support is hardware ready. Contact us for availability

³Over all channels, bands, constellations, SVs, and active multipath paths

⁴Bit depth configurable from I.BITS=Q.BITS=1 to I.BITS=Q.BITS=8

⁵Bit depth configurable from I.BITS=Q.BITS=1 to I.BITS=Q.BITS=2

⁶Contact sales@sylphase.com for more advanced scenarios



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Specifications

Front Panel Ports	
Ch A - RF Connector Power	SMA female 2 dBm (max out)
Channel A - DC Bias Connector Voltage	SMA female $\pm 12\text{ V @ } \pm 100\text{ mA}$ (max in)
PPS In Connector Maximum voltage into $50\ \Omega$	SMA female $\pm 3.3\text{ V}$ into $50\ \Omega$ (max in)
PPS Out Connector Maximum voltage into $50\ \Omega$ Maximum voltage (open circuit)	SMA female $+1.65\text{ V}$ into $50\ \Omega$ $+3.3\text{ V}$ into high-Z (max out)
10 MHz in Connector Maximum power input	SMA female 8 dBm (max in)
10 MHz out Connector Maximum power output	SMA female 8 dBm (max out)
GPSDO antenna Connector Maximum power input DC bias	SMA female 8 dBm (max RF in) $+3.3\text{ V @ } 100\text{ mA}$ (max bias out)
Rear Panel Ports	
Networking Power USB Video	1 Gb Ethernet (x1) IEC AC power connector (x1) USB-A (x2) HDMI (x1) DisplayPort over USB-C (x1)
Mechanical	
Form factor Dimensions Weight	4U rackmount 19" W x 7" H x 22" D 45 lb packaged
Electrical Requirements	
Voltage Phase Power	120 VAC-240 VAC single-phase 50 Hz-60 Hz 230W typical

What's included

- Sylphase SYL-SIM-GEN2 GNSS simulator (x1)
- USB-A to SATA cable (x1)
- IEC power cable (x1)
- SMA to SMA cable (x2)
- SMA to BNC cable (x2)
- 1 year support package (x1)

Support

Sylphase SYL-SIM-GEN2 simulators include a complementary 1 year support package. Support package renewals are available for purchase.

The support package includes access to:

- Latest software releases
- Documentation updates
- Bug fixes
- Scheduled maintenance
- Scheduled calibration
- Hardware support

Warranty

1 year warranty from date of delivery against defects in materials and workmanship.

Ordering Information

Contact sales@sylphase.com for quotes.

SYL-SIM-GEN2

2 channel	SYL-SIM-GEN2-2CH
3 channel	SYL-SIM-GEN2-3CH ⁷
4 channel	SYL-SIM-GEN2-4CH

⁷SYL-SIM-GEN2-3CH is field upgradeable to SYL-SIM-GEN2-4CH