

# NavLabs GPS SIMULATOR

**Multi-Channel GPS Constellation Simulator**  
**Now with L2C and L5 Capability**

## Key Features

- Small Single Enclosure
- Low Initial Investment
- Interface and Configuration Ease
- Windows® OS



**GPS Creations** offers the Navigation Laboratories, Inc. fully functional L<sub>1</sub>, L<sub>2</sub> & L<sub>5</sub> GPS constellation simulator. Available in either a C/A code only or C/A and P code configuration, this simulator provides a complete environment to develop and test GPS applications. The simulator can be integrated with a multi-function feature card (MFI/O) for enhanced capabilities such as IMU, automotive, factory test & timing, etc. Graphical software makes it very quick and easy to generate custom scenarios.

## Innovative Features

- Simulates 14 to 16 GPS satellites simultaneously L<sub>1</sub>, L<sub>2</sub>, L<sub>2</sub>C, L<sub>5</sub> and WAAS
- C/A code standard and optional P code
- 6-DOF User motion generator and external trajectory import capability
- Simulates spacecraft velocities and re-entry vehicles
- Remote control: RS232 or Ethernet w/standard hardware, GPIB, SCRAMNet are optional
- Customization of satellite parameters
- Real-time antenna gain patterns and antenna lever arms
- Closed loop 20 channel receiver feedback for verification and data logging
- Adjustable RF power output: with 66dB dynamic range
- Multiple RF outputs (optional); 14 or 16 satellites per output
- Optional Inertial Measurement Unit (IMU) outputs: SDLC, RS422
- Optional Automotive Outputs: Gyro, Accelerometers, Wheel-ticks, Forward/Reverse Signals
- Built-in, high-stability OCXO frequency standard
- Precision 10 MHz. output for use with other test equipment
- 1 PPS output for timing applications
- Can be customized to virtually *any* application with optional element



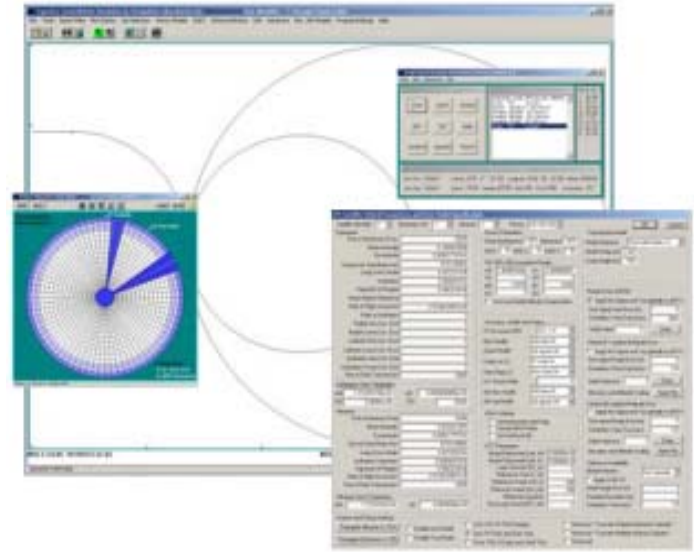
[www.gpscreations.com](http://www.gpscreations.com)

GPS Creations

# NavLabs GPS SIMULATOR

## MultiChannel GPS Constellation Simulator

The comprehensive "VOYAGER" software suite runs on a standard Windows® operating system for control, operation and monitoring of the GPS SIM constellation simulator. Among the many tools in Voyager is a versatile constellation editor that permits the user to select various satellites, remove or add them to the generated signal output list, adjust the power deterministically, force a scheduled RAIM event, implement a multipath situation or define a random attenuation profile. The graphical user interface (GUI) in Voyager does not require sophisticated user training sessions associated with many other GPS simulators. Several pre-programmed scenarios are included which provide valuable examples of features contained in the GPS SIM simulator. The GPS SIM simulator contains a 20 channel L1 C/A code receiver for closed-loop verification testing. Standard NMEA data files may be used to quickly build test scenarios that work with map databases.



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### TECHNICAL SPECIFICATIONS

#### RF:

- L1 Signals: C/A, WAAS
- L2 Signals: C/A, L2C
- L5 Signal: Revised Civil
- Max RF Output Power Level: -60 dBm @50 Ohms to N female
- Dynamic Range Power: 32 Overall, 36dB/channel, 0.5dB steps
- Satellites per RF Output: 14 - Expandable  
(multiple independent RF outputs available as an option)
- Internal Reference Oscillator: Precision cut, low phase noise OCXO

#### Accuracy (theoretical):

- Pseudorange: <0.000436 meter
- L1 Carrier Phase  
(1 second)/Delta Range: <0.0001488 meter
- L2 Carrier Phase  
(1 second)/Delta Range: <0.0002316 meter
- Interchannel Bias: Negligible

#### Dynamics:

- Velocity: 15,000 m/sec
- Acceleration: 5,000 m/sec<sup>2</sup>
- Jerk: 10,000 m/sec<sup>3</sup>

#### Outputs:

- RF: 1 or 2 connectors (type N)
- Other: 1 PPS, 10 MHz (SMA)
- PRN Codes Available: 1 thru 37 (includes pseudolites)

### PHYSICAL CHARACTERISTICS

#### Power Requirements:

- Voltage: 115/230 Volts AC
- Frequency: 50/60 Hz
- Current: 5 A

#### Computer:

- Processor: 2000+ Athlon™/Windows XP
- Disk Capacity: 120 GigaByte min.
- Removable Media: Hard Drive & R/W CD
- Display: 21" Flat Panel LCD Display
- Chassis: table Top or 19" Rack Mount  
(19" W x 7" H x 23" D)
- Weight: 45 lbs. (less display)

### ORDERING INFORMATION

#### Part Number - LabMate or LabPro

#### Models: LabMate for L1 C/A code only

#### LabPro for L1/L2/L5 Channels

- Related Products: GPS1011 Horn Antenna  
GPSRT - Rate Table
- Contact GPS Creations for GPS Simulator monthly rental options (3-month minimum rental required).
- GPS Creations also offers on-site training - contact us for additional information.

Note: Gyro, accelerometers, wheel ticks, and forward/reverse signals simulating automotive outputs are available using an optional multi-function I/O board.

Visit us on the web at [gpscreations.com](http://gpscreations.com) for more information



#### GPS Creations

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