LabSat

GPS Recorder, Re-player and Simulator

LabSat is the revolutionary new product from GPS experts RACELOGIC.

As one of the first dedicated GPS Simulators with RF record and playback facilities, LabSat enables real world GPS testing to take place in the laboratory.

LabSat is small and rugged, allowing it to be used in the field to continuously record the RF GPS signal in a digital form that can then be replayed at a later date. As LabSat records real world GPS data, this means that all GPS artefacts are faithfully re-produced on the bench. Multipath, ionospheric effects and dropouts can now be recorded and then reproduced with ease. LabSat works with the L1 (1575.42MHz) signal and has no limit on the number of satellites that can be logged.

To cover all testing requirements, scenarios can also be generated from scratch using the *SatGen* software, which can provide simulated data to specific requirements. Playback with Racelogic prepared scenarios is also possible.

How does it work?

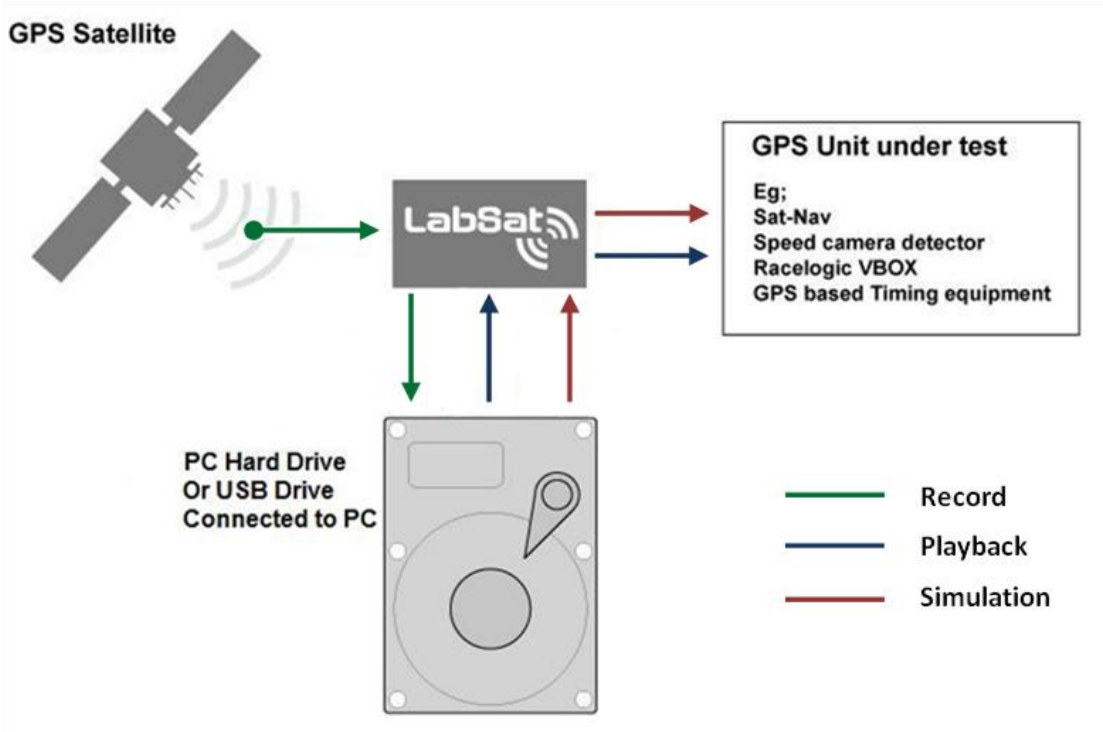
LabSat is controlled by a PC using a high speed USB 2.0 link. When recording RF GPS data, LabSat is connected to a laptop and data is continuously streamed to the hard disk. Approximately 1 GB of data is stored for every 10 minutes of use, with no limit on the length of the sample. When replaying, the same data is streamed from the laptop to LabSat at the same rate. A large internal buffer means that data is seamlessly replayed.

How is it used?

LabSat is ideal for almost any kind of GPS development. It is used to test and develop GPS engines, GPS enabled smartphones, Portable Navigation Devices, GPS tracking systems and much more. It is very well suited to end of line testing as it can represent a real world test as well as a carefully simulated scenario. In addition, LabSat can be used to calibrate GPS products, such as the Racelogic VBOX range.

Features

- Real world GPS phenomena can be seen in test scenarios, such as multipath, drop-outs, tree coverage, and atmospheric effects.
- Low cost
- Simple to use but powerful LabSat software for record and replay
- SatGen software for simulation
- Small, rugged, anodised aluminium construction
- Portable – can be powered via Vehicle DC supply
- USB port for PC connectivity



LabSat Models

LabSat Replay System (RLLSP01)
Ability to play pre-recorded GPS scenarios (illustrated by the blue line in the above diagram).

LabSat Record System (RLLSC01)
Ability to record GPS data (illustrated by the green line in the above diagram).

LabSat Record and Replay System (RLLSR01)
Ability to record GPS data, logging via USB, and replay GPS data (illustrated by the green and blue lines in the above diagram).

SatGen Software (RLLSSGSW)
Adds simulation capability to any of the above models, with the ability to simulate fully customisable GPS scenarios anywhere in the world (illustrated by the red line in the above diagram).

Connections

Connector	Description	Comment
USB	High speed USB 2.0 link	--
PWR	12 volt DC	Power Supply
AD1	Analogue + digital input 1	Input 1 for the AD signal 1 output by a VBIII
AD2	Analogue + digital input 2	Input 2 for the AD signal 2 output by a VBIII
D Out	Digital output	--
NMEA	NMEA output	CAN functionality to be added in a future firmware upgrade
SER	Serial output	RS-232 Serial input for connection to VBOX
RF OUT	GPS simulation RF level output	GPS L1 Transmission
ANTENNA	GPS antenna input to recorder	GPS L1 Reception

Package Contents

RLLSP01 / RLLSC01 / RLLSR01	**LABSAT REPLAY / LABSAT RECORD / LABSAT RECORD & REPLAY**
RLLSSGSW	**SATGEN SOFTWARE (OPTIONAL)**
RLACS113	LABSAT CARRY CASE
LSHD001	LABSAT SCENARIO 260GB HARD DISK DRIVE
RLVBACS020	VBOX MAINS CHARGER
RLCAB042	USB 'A' TO USB 'B' LEAD – 2M
RLVBCAB01	VBOX SERIAL CABLE (5 WAY LEMO TO 9 WAY 'D' CONNECTOR) – 2M
RLVBCAB10	LEMO 2WAY TO 12V CIGAR LIGHTER LEAD
RLVBACS001	GPS MAGNETIC AERIAL
RLCAB070	3W-3W LEMO PLUG CALIBRATION CABLE X 2
RLACS071	SMA-SMA CABLE - 1M
SX_AER_CABL	SMA – MCX CONNECTOR
SMA_J_TNC_P	SMA – TNC CONNECTOR
CDRLLS	LABSAT SOFTWARE CD
LS01MAN	LABSAT MANUAL
RLLSCAL	CALIBRATION CERTIFICATE
	Customer Support Form and User Guide

Technical Specifications

Output Signal Level	Adjustable -85dBm to -115dBm
Output Signal frequency	1575.420 MHz
Sampling frequency	16.368MHz
Bandwidth	4.092Mhz
Quantisation	1 bit
USB transfer rate	2.046Mbytes per second
Active Antenna Voltage Supply	3.3v
Reference Oscillator	16.368MHz Temperature controlled +/-0.5 ppm Long term stability +/-1.0ppm
Operating voltage	8v to 30VDC
Size	170mm x 128mm x 38mm
Weight	750g